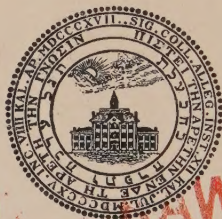


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THE STEREOGRAPH and THE STEREOSCOPE

With Special Maps and Books
forming
A TRAVEL SYSTEM

WHAT THEY MEAN FOR INDIVIDUAL
DEVELOPMENT. WHAT THEY PROMISE
FOR THE SPREAD OF CIVILIZATION

BY
ALBERT E. OSBORNE

Illustrated with Drawings

UNDERWOOD & UNDERWOOD
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There is a boundless field of discovery still open to those who investigate the laws which govern the development of our nature. When we look at the high degrees of excellence which that nature so often attains under favorable conditions for the growth and exercise of its better powers, and when we contrast this with its stunted and distorted growth as exhibited among large portions of mankind, it becomes a question of deep and endless interest to know how far these conditions are subject to the control of will through the use of means,—The Duke of Argyle, "The Reign of Law," page 324.

PART I

CHAPTER I

INTRODUCTORY

I REMEMBER well the first time I saw a stereoscope and stereographs. It was at the home of an uncle in northeastern Pennsylvania, when I was less than ten years of age. The experiences I then had I have never forgotten. I seemed let out to the ends of the earth. I had never traveled, but I had dreamed of visiting the great world of which I had heard, and now something that had happened only in fairy story or by Arabian magic seemed a real possibility. For this clearly was not magic nor mere make-believe. I was taken out to no world of fancy, but to the world of fact.

Of course, there was a contradiction and paradox about it all. It was only cards and pictures I was looking at. I was sitting, too, in my uncle's home. Still, at the same time, I was conscious of experiences that room in Pennsylvania could never give,—experiences of places thousands of miles beyond its walls. Nevertheless the grown-ups went on talking about ordinary matters, as though nothing unusual or at all extraordinary was occurring for me or was possible to others, and so the wonder I was eager to talk about was put aside for the time.

Later some stereographs were brought into my own home. They likewise were looked at with mingled awe and pleasure. It was noted too that the grown-up people who looked at them would often say that they had taken a trip that evening, that they had been

to Europe, etc.,—that is, they would speak in terms that my own experiences seemed to justify; but still the stereographs were treated as though they were of no serious importance.

Nothing occurred to call my attention more particularly to the subject of stereographs until the middle of my freshman year in college. Finding then that I must rely upon my own efforts, I determined to try to sell something during the next vacation. The first opportunity that presented itself was the sale of stereographs. As I looked again through the stereoscope at various parts of the world, the old fascination of the strange contradictory experiences again impressed me, and I determined to take up the work. I was successful to a degree that exceeded my expectations. I found I could sell to a very large proportion of the people. There was no class nor age to whom this way of seeing the world did not appeal.

About the time of my graduation from college, the firm of Underwood & Underwood began to photograph countries systematically. Previously stereographs had been taken in a haphazard way, and sold in unclassified collections. In the fall of that year, Underwood & Underwood offered me the opportunity to go among the colleges of New England and the Middle States to secure salesmen for them. Up to that time I had not thought of the stereograph as a permanent interest, but the sight of the classified stereographs, together with suggestions of plans for descriptions, opened up possibilities in accord with my earlier intuitions, and I accepted the position.

In carrying on this work I made it a practice to show the stereograph "tours," as we call them, to one or two of the leading professors in each of the colleges I visited. The serious attention they almost invariably received strengthened greatly my own

lively though rather indefinite convictions as to the possibilities of usefulness in this field.

All along, however, I had frequently met with the most contradictory attitudes toward stereographs, on the part of different people; and from the beginning also I had been conscious of many contradictions among my own ideas about stereographs. Then, too, the history of the stereoscope and stereographs called for explanation. In looking up this history I found that they had been placed on the market first about 1850. The principle of two-eye vision, the principle upon which the stereoscope and stereographs are made, was discovered a few years earlier, but at first only drawings were used in the stereoscope. It was not until the later forties that anybody thought of using photography to get the twin pictures needed for the stereoscope. As soon as this was done the stereoscope and stereographs became a commercial article. They spread like wild-fire, and soon were known all over the civilized world. By the sixties they were used more than any other kind of illustration. But by the seventies they had gone out of use almost entirely. Since that time they had been coming into use again, but mainly through the efforts of salesmen.

Now how could this past of the stereoscope be explained? One was clearly between the horns of a dilemma. Either, on the one hand, the great claims which so many had made, for the possibilities of value in the stereoscope, and which I had felt, were unfounded; or, on the other hand, if these claims were true, then the world had for many years been making a mistake. It seemed impossible to rest in either conclusion, and equally impossible to reconcile them.

Finally a clue to the solution of the question was found in reading the preface to Le Conte's book on

"Sight." After speaking of the interest and the importance of the study of vision to particular classes, Le Conte went on to say: "But the field of binocular (or two-eye) phenomena is a *closed world* to most, even intelligent, people." As the very nature of stereographs is "binocular phenomena," this meant that the very nature of stereographs had been "a closed world to most, even intelligent, people." Here, then, unquestionably was to be found the explanation for the unusual history of the stereoscope and the stereograph. I had been assuming that stereographs were simple in their nature, and that if intelligent people once had used them they must understand what they were using, and that if they threw them aside they must understand what they were doing. Evidently, though, this was not true. Le Conte further said that binocular or two-eye phenomena are illusory and difficult of analysis, being to so great a degree subjective, and closely allied to psychical phenomena.

As this fact has been realized more fully, what may be called the first definite effort has been put forth to study the nature of stereographs, the experiences that could be gained in connection with them, and the respects in which these experiences differ from the experiences to be gained in connection with other kinds of illustrations, together with the helps needed for the most effective use of stereographs. In the following pages the aim has been to outline some of the more important results of this study.

While it might be said that this study has only brought out explicitly and definitely what had been more or less vaguely felt and hinted at by many all along, still, on the other hand, it can be said that this study indicates that the ideas of stereographs more commonly held are to be revolutionized. To give the

briefest mention of the more important results of this study, we have, in the first place, come to realize more definitely and clearly that we get *perfect space* in the stereograph, and how greatly this differs from the *appearance* of space that we get in all other illustrations. Second, that the space the stereograph gives us is *not miniature* space, *but life-size* space. That is, it is found that the two small photographs, held a few inches from our eyes in the stereoscope, serve as windows *through* which we look, and *beyond* which we see life-size representations in all three dimensions, breadth, height and depth. Third, and more remarkable still, it has been found that people may gain not merely experiences of sitting in their homes and seeing life-size *representations* of Palestine, for instance, but rather *experiences of being in these very places in Palestine*. These experiences must have, of course, many limitations as compared with those of the traveler. Nevertheless, after all these limitations are taken into definite account, it is found that the experiences made possible to people with the stereograph are comparable to what they would get by being carried unconsciously to the places in question, and being permitted to look at them.

It is recognized that such statements are remarkable, and it is taken for granted that there must be for a time much difference of opinion in regard to them. However, these conclusions have been reached after an investigation followed through many years and after experiments with many thousand people. Many authorities have subscribed to the conclusions given in the following pages, and it is believed that all people of normal vision who make a careful investigation must agree to their substantial accuracy.

But as soon as these more definite ideas as to the nature and possibilities of the stereograph were recog-

nized, it became evident that if these possibilities were to be realized people must have much to aid them in their use of stereographs. First of all, they must have some means by which they could know definitely what part of a city or country they were seeing through the stereoscope, that is, the relation of these particular parts to each other and to the country as a whole; furthermore, they needed information about the places seen. This led to the devising of a special map system, and to the preparation of special books in which authorities serve as personal guides to the places visited through the stereoscope. A more detailed description of these maps and special guide books is given in Chapter V. With the invention of these maps and the publication of these books, it can in truth be said that a veritable System of Travel was produced. The more this System is considered the more clear it becomes that it has immense possibilities of usefulness. Its applications to life are unnumbered. Among the applications already made may be mentioned:—

Tours which make possible direct access from the homes of the millions, from schools and libraries, to the chief points of interest in the more important countries throughout the world.

“Travel Lessons” which make it possible for adults and children alike, in hundreds of thousands of homes and Sunday Schools, to study the life of Jesus, and the great events and characters of Old Testament history, right in connection with the very places in Palestine or Egypt where these far-reaching events occurred.

“Geography through the Stereoscope” by means of which the millions of school children can be brought into the presence of almost any desired part of the world. It means that the range of experience

of the average child can be incalculably increased.

It is not the intention, however, in the following pages to take up the special applications of this Travel System, but rather, as already intimated, to give the more general conclusions so far reached as to the nature and use of stereographs. It has seemed wise to begin with some consideration of pictures in general. Because of the confusion of thought that exists as to the different ends which pictures can serve, we shall take up in our next chapter the story of man's use of pictures, and try to get clearly in mind the chief ends they have been made to serve. In the third chapter we shall consider the different kinds of pictures, with the purpose of showing that the stereograph is the one kind best fitted to serve the purpose of actual sight,—the kind best fitted to give, as far as possible, the experience of seeing the object or place itself. In the fourth and fifth chapters we shall make a more thoroughgoing study of the stereograph, with the helps to be used with it. In the remaining chapters an effort is made to estimate the significance of the Travel System thus formed, the need man has for it, and a comparison of other means of supplying this need.

Some may at first be surprised that so much space is given to a study of life, especially in the second part of the book, under the general heading, "What are the Necessities of Life." A little further thinking, however, will show that it is only natural that such considerations should be taken up in trying to make clear to the general public the value of the stereoscope and stereographs. In the minds of most people it might be said that stereographs fall half-way between necessities and luxuries. They are not called for by custom like many luxuries that minister so largely to personal pride; they certainly have not

been thought of by most people as necessities. Hundreds and even thousands of articles have come to have a more or less definite place under these heads, but so far the stereograph and the stereoscope have had no such assigned place in the public mind. This is due, not only to the lack of knowledge about stereographs already referred to, but also to the fact that the sort of benefit the use of the stereoscope and stereograph gives, that is, a wide first-hand knowledge of the world through the sense of sight, is not self-evident, and has received little consideration by most people. Heretofore, this sense-knowledge of the world has been possible only to the few, through travel. Being so utterly beyond the reach of the many, they have given little reflection to its importance. Now, when for the first time by means of this stereograph Travel System this is made possible to the millions, it is natural that many should be uncertain about its value. Consequently, such people can be led to determine the place of the stereograph only as they are led to make a study of life, with especial reference to the needs the stereograph satisfies, and the extent to which they are dependent on the stereograph for the satisfaction of these needs.

It should be said further that there has been no thought of preparing a treatise for the specialist, but the object has been rather to popularize knowledge given in more abstruse form elsewhere. There has been a constant effort to treat every phase of the subject in such a way that the average reader can follow it. This object explains also the frequent summaries given as well as the liberal use of paragraph headings.

The writer has gathered material freely from many sources, and acknowledges an indebtedness to others that is too general for specification. Some material

was jotted down for personal use, and without a record of its source, before there was any thought of its use in this way. But when the source of a quotation is known, credit is given.

CHAPTER II

DIFFERENT ENDS FOR WHICH PICTURES HAVE BEEN USED

Pictures used throughout history.—Before taking up the study of the stereograph it will be well for us to give some thought to the use of pictures in general. The story of man's use of pictures is both interesting and instructive. Far back in the earliest civilization of which we have any knowledge, we find men utilizing pictures, and Dr. G. Stanley Hall, in a recent article, writes:—"Probably they (pictures) have multiplied more within the last ten years than in all the previous history of mankind."

Pictures are used to serve important needs.—However, the question we want to consider here more particularly is as to the ends for which pictures have been used. Everybody, old and young, delights in pictures. In using pictures have people been simply indulging themselves in the pleasures of their senses, or have they been using them to satisfy some real needs of their many-sided nature, needs as important, in their way, as that of nutritious food for the body? More and more people are coming to this latter conclusion. "It is a mistake," says one educator, "to suppose that mere amusement or entertainment explains our love for pictures."

What, then, are the ends for which man has used pictures? To what extent have they served or can they serve these ends?

The three ends for which pictures have been used.—In a general way we may say that man has used pictures for three ends:

First, to give an expression of the beautiful; and

thus to be a means of stirring the emotions associated with the beautiful.

Second, to be a vehicle of thought, that is, a means of conveying and recording ideas or knowledge, as the "picture-writing" of the ancients.

Third, to serve for actual sight — to give the information, the experience, as far as possible, of seeing the very object or place itself.

Of the three ends here referred to, for which man has used pictures, the first, evidently, is the end of beauty or the use of pictures as fine art; the second and third are ends of utility.

CONFUSING THE USE OF PICTURES FOR ENDS OF BEAUTY AND OF UTILITY

But we should recognize that much confusion of thought exists to-day as to these different ends which pictures may serve. Especially is it true that the use of pictures as expressions of the beautiful, or as fine art, has stood out in the minds of the majority of people to the exclusion of their use for ends of utility. Thus to many people the word "picture" is synonymous with something pretty or beautiful. To make a picture means primarily to make a beautiful picture. To have a clear understanding of the use of pictures as fine art on the one hand, and for the ends of utility on the other, and to estimate the relative importance of the use of pictures for these different ends, one should undoubtedly have a fairly clear idea of the nature of beauty, its particular service in our lives, and the possible expression of beauty in pictures. Nevertheless it has not seemed necessary to take up these questions here, though an outline treatment of them is given in the appendix.¹

Distinctions between the beautiful and the useful.

¹ See APPENDIX I, page 261.

— In this connection we will refer to only one distinction between the beautiful and the useful, that is, that we find pleasure in the beautiful as an end in itself, while, in considering any object as a utility, we are always considering it as a means to some end beyond itself. And furthermore, our pleasure in contemplating the beautiful is unselfish and social, and thus distinguished from selfish pleasures like the pleasures of tasting and smelling or the feeling of ownership. The object can be owned but not its beauty. That is free to all who look. Besides, our pleasure in the beautiful is increased if shared with others. With these simple principles in mind, it is easy to understand the tendency to confuse the use of pictures for ends of beauty and for ends of utility.

Pictures used for ends of utility not used as fine art.— On the one hand we find there are many who feel that it is not enough to say that the one purpose for which pictures are used *as fine art* is the more refining and unselfish kind of pleasure we have spoken of above. We often hear it said that in a collection of paintings you can find not only beauty, but history ; you can get valuable information of the manners and customs, the usages and institutions of people in other lands and times. Has not painting been compared to literature as a means of developing the human mind, and is it not said that painting is a handmaid of the Church, a means of propagating religion, of teaching its doctrines, of preaching its faith? This is undoubtedly true, but we are to see, that, in so far as pictures are used for these ends, they are not used as fine art. The object of the beautiful, and therefore, of all fine art whose end is the beautiful, is not to teach nor preach, but to give pleasure—the pleasure we

find in contemplating the ideal. The beautiful is a sufficient end in itself to justify the fine arts.

In other words, all these other claims for the value of fine-art pictures merely serve to show us that *the same pictures can and often do serve different ends*. The artist cannot express the beautiful in an abstract way. He must choose some concrete object, person or event. Naturally, then, we are able to gain much useful information from the objects thus chosen, in addition to our pleasure in the beauty which they express. We can see, therefore, that there is no sharp line of separation between pictures whose end is beauty and pictures used for some end of utility. The two classes merge into each other.

Underestimation of the ends of utility which pictures can serve.—On the other hand, many people who put a very high estimate on the value of pictures as expressions of the beautiful are often led to undervalue greatly the other needs of man which pictures can be made to supply. Such people are likely to estimate the value of all pictures by the one standard of beauty. For instance, we might have a picture of a new electrical engine, that, though crudely drawn, could revolutionize much in our life to-day and relieve men of many burdens; and yet, by the standard of beauty, this picture would have no value. Here is a photograph of a place which arouses interest, that leads to knowledge and inspiration which change a life's course, and still, to one judging only from the artistic standpoint, the photograph might have little value. This tendency on the part of thousands to think so exclusively of pictures as expressions of the beautiful, has been one of the greatest hindrances to any reasonable recognition of the great ends of utility they can serve.

Can photographs be classed as fine art?—Before passing on to a consideration of the other ends besides beauty that pictures have served, there is another question which it is important for us to consider,—that is, as to the *kind* of pictures that can be classed as fine-art pictures. In these modern days, especially since the invention of photography, this question has been much discussed. It has been contended that from the very nature of the camera it is impossible for the photographer to do more than make mere copies of nature; that there is no opportunity for him, though he be an artist, to select and discard from the material he finds in nature, and thus exceed in his photograph ordinary reality, in giving expression to the beautiful. Ruskin has said, “Any work of art which represents not a material object, but the mental conception of a material object, is in the primary sense of the word ideal.” If we say a work of fine art is an ideal representation of things, and insist on this strict definition for the word ideal, then no photograph can be classed as a work of fine art. This, however, anyone must feel, is too narrow a definition of a work of fine art. Coleridge suggests a more adequate definition when he says that painting is of “a middle quality between a thought and a thing—the union of that which is nature with that which is exclusively human.” This gives more chance to the photographer.

Photographer’s personality may pervade his photographs.—It is certainly true that if two men, one with more artistic instinct than the other, are sent out with a camera to do the same work, the former will come back with the more beautiful photographs. There are such possibilities in choosing standpoints for the camera, in selecting and placing life, in catching the particular moment for lights and shadows,

and then in developing the negatives and in toning the prints, that, as expressions of the beautiful, one man's photographs may be worth many times as much as another's. Indeed, no one to-day doubts that the personality of a photographer may pervade his photographs. It is often found that one photographer's work has a distinctive character, an individuality, that distinguishes it from the work of another.

Photography can multiply the beauties of nature and art.—But whatever conclusion we may come to in our own minds, let us see that this question does not in any way challenge the photographer's ability to give beauty as it is found in nature. There is some loss in color, but the inexhaustible beauty that is revealed to us in innumerable instances by the delicate and sublime in form and by variations in light and shade, does not fade out when nature is reproduced in the photograph, especially in the marvelous reproductions of the stereoscopic photograph. The "David" of Michelangelo, in the field of sculpture, stands before us in the stereoscope with all the exquisite spirit and grace of the marble itself. In insisting that the artist increases the riches of nature by *adding* new creations of his own, we certainly should not fail to see that the photographer can at any rate enormously increase nature's riches by *multiplying* them. The sublime mountain that can be sought out only by the few, the photographer can show to the millions. The exquisite beauty of the snow-laden forest glade he can flash before men in all seasons and in any clime. Photography, we see, therefore, can do a great deal to satisfy humanity's need for the beautiful.

We pass now to the consideration of the other ends besides beauty, that pictures have served or can serve.

THE USE OF PICTURES AS LANGUAGE — PICTURE-
WRITING

First, we will take up what we found on page 11 was the first end of utility which pictures served, that is, in being a mere vehicle of thought, like the “picture-writing” of primitive men. Evidently the need back of this use of pictures is the need men have of communicating their thought and knowledge, not only from one to another in the same generation, but also from one generation to succeeding generations.

Gestures and sounds the first means of conveying thought.— Starting with primitive man, it is supposed that his first effort to communicate his ideas was by means of gestures, by pointing toward an object, and giving some idea of its form or nature by movements. It is thought also that early people instinctively accompanied these gestures by sounds which expressed the emotions awakened, and which varied according to the nature of the emotions. As time went on these sounds by themselves became signs for the objects.

The use of pictures as language.— But man’s first invented means of conveying his thoughts *to the eyes* of his fellows was pictures. This use of images and pictures is found to be common among savages everywhere. Thus a man would draw a crude picture of an ox to suggest the thought of an ox, and later this would be abbreviated to a picture of only the head and horns. The next step was to use these pictures symbolically. He would draw the picture of an eye not only to represent that part of the body, but also to symbolize *the act of seeing*, and further still to stand for that quality or power of mind by which we discern what is conducive to our highest interests, — *wisdom*. By means of about one thousand such picture-characters, called hieroglyphics, the early Egyp-

tians succeeded remarkably well in conveying their thoughts to one another and in recording their knowledge for future ages.

Thus we see the time was when pictures were man's only means for communicating thought and recording knowledge in a graphic and permanent form.

Evolution into written language.— But this was a very cumbrous kind of language, so, for convenience in writing, pictures took on a more and more abbreviated form. We are to remember also, that, while man was making use of pictures in this way, there was being developed, as we have said, a system of sounds which were associated with man's thought of objects and which constituted the spoken language of the time. Now it is believed, that, by a very slow process through the centuries, some of the sketches in the picture language came to be used phonetically, that is, to represent not ideas of objects, but these sounds, sounds though, at first, for whole words and syllables. Later, the pictures ceased entirely to be pictorial representations of objects and were abbreviated into letters or written signs standing for the elementary sounds, which in combination had come to stand for objects and ideas in this spoken language of the day. Thus alphabets and written language came into existence.

All alphabets evolved from picture-writing.— While perhaps impossible of absolute proof, it has been believed also that all alphabets might be traced back through their successive stages to four or five parents, all systems of picture-writing:— the Egyptian, Chinese, cuneiform, Mexican and the curious characters of Yucatan or Central America. No two of these five systems of picture-writing were developed to the same degree. Each was arrested and remained fixed at a certain stage in its progress. The

Chinese, for instance, is to-day a strange mixture of sketches for objects, and signs for the sounds of one-syllabled words. For years the theory was held that only the Egyptian picture-writing, worked over by the Phœnicians and the Greeks, was reduced to anything like a perfect alphabet, thus making possible what we know as written language. Recent discoveries in Crete by Mr. Arthur J. Evans have made this theory untenable. It is now an unsettled question whether the "Phœnician characters are modifications of the Egyptian or the Hittite or of Cypriote, or mere abbreviated forms of a picture-writing peculiar to the Phœnicians."

Thus we see how pictures, which had been in such standard use, went out of use entirely, we may say, among people who possessed this new and abstract form of written language. This brings us, then, to the close of our consideration of man's first use of pictures for an end of utility, that is, as a mere vehicle of thought, or as language.

PICTURES AS A MEANS OF GIVING EXPERIENCES OF THINGS THEMSELVES

Use of written language instead of pictures.—

But now that man had come into the possession of this new form of written language, was there no further end of utility for pictures to serve? For a long time it seemed so. Manuscripts were written seeking to give expression to the knowledge of the time, and men who wished to learn studied these manuscripts. It is true that some people, like the early Christians, made use of pictures as symbols, and here and there pictures served as historical records. But for centuries the chief use of pictures was for embellishment, or as an expression of the beautiful.

Seeing the insufficiency of language.—Finally,

though, in the fourteenth century, the invention of the printing press was announced, followed by the gradual development of the art of printing. Manuscripts which had been slowly and laboriously copied by hand at great cost were now quickly multiplied by thousands in printed form at a low cost. As a result, a vastly increased number of people learned the use of written language, and began to seek information and knowledge through it. Then there was developed a more vital realization of the great fact that it was not enough for people to see *words* about things; that they needed, first of all, to get knowledge of things through the senses, especially that they needed *to see things* themselves. Reading *about* things was not enough.

Comenius institutes use of pictures again.—It was left, however, for Comenius, the distinguished educator of the seventeenth century, to take the first step toward putting this principle into practice in education. He held that words and things should be learned together. Wherever possible, therefore, he insisted on the study of things themselves, either in the schoolroom or outside, but, recognizing that it was impossible for children or adults to actually see most things of the world, *he instituted again the systematic use of pictures, on the ground that the next best thing to seeing an object itself, is to see a picture of it.* This new movement was inaugurated by the publication (after much difficulty, owing to the crude methods of picture-making of the time) of the book which he called “Orbis Pictus,” or “The World Illustrated.”

Estimates of his book, “The World Illustrated.”—A few statements from educational authorities will give some idea of the epoch-making character of this book.

"It differed from all previous text-books in being illustrated with pictures on copper and wood of the various topics discussed in it."—History of Education by Philobiblius, New York, 1862, page 210.

"The 'Orbis Pictus,' the first practical application of the intuitive method, had an extraordinary success, and served as a model for the innumerable books which for three centuries have invaded the schools."—Compayre's History of Pedagogy, Payne's Translation, page 127.

"The principle on which Comenius most insisted is that the teaching of words and things must go together hand in hand. . . . We must conclude that *it is in the acceptance and development of this principle that the improvement of education will in the future consist.*"—Encyclopedia Britannica, 9th edition, VII., 674.

In this book of Comenius, then, we mark the beginning of what we may call the great modern movement for the use of pictures—their use, as stated on page 11, as a means of giving the information, the experience, as far as possible, of seeing the very object or place itself.

It need hardly be said that it is with this use of pictures that we are particularly concerned in this discussion. However, it is not our purpose to attempt any account of what has been accomplished by this use of pictures, especially those results made possible by the invention of and improvements in the art of photography. Few people to-day realize how much the invention of photography has contributed not only to the pleasure but also to the education of millions of people throughout the civilized world. Its applications in scientific work have been myriad. It would require volumes to estimate the blessings that have resulted to civilized man through this use of pictures.

How adequate are pictures as a substitute for actual sight?—The question we want to consider particularly is as to the adequacy of pictures *to serve the purpose of actual sight.* Pictures are not the real-

ities themselves ; how much, then, of what we get from the sight of the things themselves, can we hope to get from the pictures of these things? There ought to be no question about the need for, and the importance of, such an investigation. Several hundred years ago educators in their appreciation of the value of pictures were ahead of the art of making them. Comenius had to wait six years for the illustrations used in his book, and even then they were but caricatures. To-day, on the other hand, the art of making pictures has outrun the educator. It is not too much to say that we now have far better pictures than we appreciate or know how to use.

The different kinds of pictures must be considered.—At our very first step, however, toward the consideration of this question how near the experience we can get with a picture can come to our experience of seeing the objects or place itself, we are confronted with the fact that there are many kinds of pictures. Obviously it would be absurd for us to think that we could make any real progress in finding an answer to our question, until we have determined by some standard which is the best picture for our purpose. After this is done, we can go on to consider how much of what actual sight gives we can get by the right use of this kind of picture.

CHAPTER III

THE DIFFERENT KINDS OF PICTURES

Which picture gives an experience nearest to that of actual sight?—As we said at the end of the previous chapter, there are many different kinds of pictures — paintings, engravings, etchings, innumerable kinds of reproduced drawings, original photographs, copied photographs, stereographs, etc. As we stated there also, it is impossible to determine how nearly the experience we can gain from a picture of an object or place can come to the experience we get of the object or place itself, until we have determined by some standard which is the picture best fitted to serve this purpose. Indeed, one of the strongest evidences that the age for the more serious consideration and use of pictures is just coming in, is that only recently have people begun to take practical account of the differences in pictures.

Different pictures tested by three advantages of actual sight.—How then may we determine which kind of picture can give us the knowledge or experience nearest to that which the object or place itself would give? A detailed description of the different kinds of pictures is in no wise necessary. A conclusion sufficiently final can be reached by taking account of the chief characteristics or advantages of an actual sight experience, and then testing the different kinds of pictures by their ability to give us these advantages. Roughly, we can put these characteristics or advantages under three heads:

First, we get wonderfully accurate sense impressions of the object or place.

Second, the knowledge or experience is gotten with the least possible effort and in the shortest possible time.

Third, we get such emotions as the actual object or place can give.

The mere reference to these characteristics of our actual sight experiences ought to be sufficient for our present purpose, though they have a significance and importance far beyond what are ordinarily recognized. This subject is taken up for fuller consideration on page 141.

According to the test of accuracy we must have a photograph.—Turning now to apply this three-fold standard to the different kinds of pictures about us, we will apply first the test of accuracy. At once we find that the various kinds of pictures fall into two classes, with what may be called an infinite gulf between them,—that is, those that are hand-made, made by the finite hand of man, and those that are photographic, made by the infinitely accurate sun's rays. We are far from being fully alive to the superiority of the photograph from the standpoint of accuracy. A certified photograph is a certificate of fact. It takes a man with a command of language like Dr. Holmes, to do the photograph justice. "It has become such an everyday matter with us that we forget its miraculous nature, as we forget that of the sun itself, to which we owe the creations of our new art. . . . Nothing but the vision of a Laputan, who passed his days in extracting sunbeams out of cucumbers, could have reached such a height of delirium as to rave about the time when a man should paint his miniature by looking at a blank tablet, and a multitudinous wilderness of forest foliage or an endless Babel of roofs and spires should stamp itself in a moment so faithfully and minutely, that one

may creep over the surface of the picture with his microscope and find every leaf perfect. . . . Theoretically, a perfect photograph is absolutely inexhaustible. In a picture you can find nothing which the artist has not seen before you; but in a perfect photograph there will be as many beauties lurking unobserved, as there are flowers that blush unseen in forests and meadows." It is only in connection with photographs that we can get impressions of things that can be compared to what actual sight gives.

We must have an original photograph.— We must be careful to realize something of the great difference between an original photograph made directly from the original negative, and all copies or photographs of photographs, and all kinds of photographic reproductions. There are far more differences than we can hope to be conscious of. We often say there are no colors in an original photograph, only differences in light and dark, but there are numberless variations and gradations of these effects. There is a little difference of tone for stone and water and earth and bark and leaves and cloth and flesh. Almost all of this is lost in copies and reproductions, where all is brought down nearly to one general tone. This really great loss in fine gradations of tone and in details makes us feel, in connection with copied photographs or half-tone reproductions of photographs, that we have looked upon some model of these various objects made out of one material rather than upon the realities themselves.

We must have a stereograph.— Furthermore, we must, according to the demands of our standard of accuracy, divide all original photographs into two absolutely distinct classes—what we may call ordinary photographs and stereographs or stereoscopic photographs.

There is a fundamental difference between the stereoscopic photograph and all other kinds of illustrations. It is only in the stereoscope that we get the advantages of two-eye vision. Many people have never stopped to think why they have two eyes. We are able, however, to get a much better, a radically different, impression of space and of the solidity of objects by the use of our two eyes. The two eyes see different pictures of the same thing, for the obvious reason that they look from points between two and three inches apart. By means of these two different views of an object, the mind, as it were, *feels around* it and gets an idea of its solidity. Stereoscopic photography is based on this principle. The two photographs on the stereoscopic card are not just alike, as many have supposed. Each is made by a different lens in a camera, the two lenses being separated by a distance about equal to that between our eyes. Thus by enabling each eye to receive in the stereoscope impressions similar to those it would receive if we were looking at the actual scene, we get the same sense of solidity, depth, space. Says Dr. Holmes again:—"The first effect of looking at a good photograph through the stereoscope is a surprise such as no painting ever produced. The mind feels its way into the very depth of the picture. The scraggy branches of a tree in the foreground run out at us as if they would scratch our eyes out." It is true that any picture in which light and shade are properly managed has more or less of the effect or *appearance* of space and solidity. But in the stereoscope there is added an entirely different kind of perspective, which, to our eyes, gives perfect depth, perfect solidity, perfect space.

We should note particularly too the size of these stereoscopic representations to our consciousness.

Some people have called stereographs little pictures, but it is now being realized that the two small photographs, held a few inches before our eyes in the stereoscope, serve as *windows through which we look*, and beyond which we may see practically life-size representations in all three dimensions, breadth, height and depth. It is true, that, owing to the conditions under which stereographs are looked at, many have thought they were miniatures, but it is found that when they are seen under the right conditions it is entirely possible for anyone to acquire rapidly the power of seeing these representations in the natural proportions of the objects and places themselves. Later on this subject will be taken up and discussed more thoroughly.

According to our first test, the standard of accuracy, therefore, we find the stereoscopic photograph to be the climax of all illustrations.

The stereograph is the best in ease and quickness of giving impressions.—Turning now to the second advantage of actual sight, the ease and quickness of getting knowledge, we find less difference between the different kinds of pictures. We get impressions of things easily and quickly from any kind of picture. But even here the stereograph is best; because of the lack of depth or space in the ordinary picture, more thought and time are required to estimate and judge the distances and the forms of things, while in the perfect space representations of the stereograph one can get true ideas of things at once. The hood of the stereoscope, which shuts away all surrounding and distracting objects, is a further advantage in enabling one to get impressions easily and quickly.

The stereograph is the climax of all in giving the emotions of actual sight.—It remains for us now to test the various kinds of pictures by the third advantage of actual sight—their ability to give us

the emotions that we should get by seeing the object or place itself. First of all, it will be evident that we shall *get the emotions of the place or object itself in connection with a picture, to just the degree in which we are able to forget that we are looking at a picture and to think that we are in the presence of the place itself and its surroundings.* Now this very experience can be had, it is found, in connection with the stereograph and the stereoscope. While looking at the stereoscopic representation of a place it is possible for a person to lose all consciousness of his immediate bodily surroundings, and to gain, for appreciable lengths of time, a distinct consciousness or experience of being in the place itself. It follows, then, that whenever we do get this sense of location in a certain place — Rome for instance — in the stereoscope, we must get part at least of the very same emotions which we should experience there. This is the unique and unrivalled claim for the stereoscope and the stereograph. For, it is also found that this sense of location in the presence of the object or place represented cannot be had in connection with any other kind of picture, which does not give perfect depth for the eyes, and the setting of which, in our hand, in a gallery or on the screen, can be seen. The mind never loses consciousness of our location in the place where our body and such a picture are. In the stereoscope, on the other hand, with all our immediate surroundings shut out by the hood of the instrument, the representation standing out before us in all three dimensions, life size and with almost perfect detail, the conditions are so radically changed that the radically different experience outlined above is made possible. Walter L. Hervey, Ex-President of Teachers' College, Columbia University, now a member of the New York City Board of School Examiners, writes:

“When one looks at an ordinary picture of a distant place with the naked eye, one feels himself to be still in America, or wherever he may be at the time. Through the stereoscope, with the outer world shut off by the hood, one feels himself looking right at the scene itself.”

It would appear, then, that by the test of accuracy of impressions, ease and quickness of giving impressions, and now finally by the power to give the emotions that the object or place itself would give, the stereoscopic photograph is, among all illustrations or pictures, the one best fitted to give us the advantages and benefits of actual sight.

We now pass to a more careful study of the stereograph and the stereoscope, for the purpose of verifying these claims, and determining to what extent we may gain from them the advantages of actual sight.

CHAPTER IV

STEREOGRAPHS AND THE STEREOSCOPE

WHAT is a stereoscopic photograph? We mean what is the real nature of the representation of an object or place that is furnished in the stereograph? Almost every child knows what a stereoscopic photograph is in our hands, what its shape is, its weight, and of what material it is made — a small thin piece of cardboard holding two smooth pieces of paper pasted upon it. But photographs and illustrations in general are made and sold and used not for what they are to our hands, but for what they are to our mind or consciousness through our eyes; for what they may teach us, for the influence or effect they may have upon us, through our eyes. Moreover, stereoscopic photographs are used for what they may mean to us when they are *seen through the stereoscope*. If we want to get at the real nature of a stereoscopic photograph, then, we must consider what it is to our minds when seen through the stereoscope.

To accomplish this purpose we shall almost of necessity have to understand the two fundamental laws of our everyday vision.

THE TWO LAWS OF VISION

Following closely LeConte's excellent book on "Sight," we find that the first law of our vision is the *law of outward projection of images formed in our eyes*. Whenever we open our eyes to the light, images are formed within them of all that is before us. It is with these images that we have to do immediately in seeing. But we never see these images *in our eyes*. We never see anything *in the eye*, but

always something outside in space. That is, in seeing, we are referring these eye images out, as near as possible, to the objects from which they have been reflected to us. So we are to understand that what we really see at any time are these eye images which we have thrown out of the eye, as it were. We are dealing then in seeing with what we may call *external images*.

To many people this would at first seem unreasonable. They are likely to say that when they look out of their window at buildings or trees, there is no coming or going of images. They simply see the buildings and trees outside of the window and the real buildings and trees are there. They could go out and touch them.

But now let us place a mirror on the wall opposite the window and turn and look into it. At once we see the buildings and trees behind the mirror's surface, in exactly the opposite direction from where we saw them before. In this case the light from the buildings and trees comes through the window, strikes the mirror's surface and is reflected into our eyes. We now refer the images of the buildings and trees thus placed in our eyes back along the lines on which they enter our eyes, and so we throw them into the mirror, thus getting the images by themselves, separated from the real buildings and trees from which they were first reflected. This may help us to realize that when we look at things we are really seeing the images of the things which light has put into our eyes and which we are projecting or referring out again.

Again, push your finger beneath one eye-ball. If this is done so as to move the eye-ball somewhat, you notice that the distant sky line or any object in full view appears double. Not only that, but your whole

field of vision can be moved, you find, by thus moving one eye in this unusual way. This is another demonstration of the fact that, in seeing, we have immediately to do with the images of things which we are projecting from our eyes.

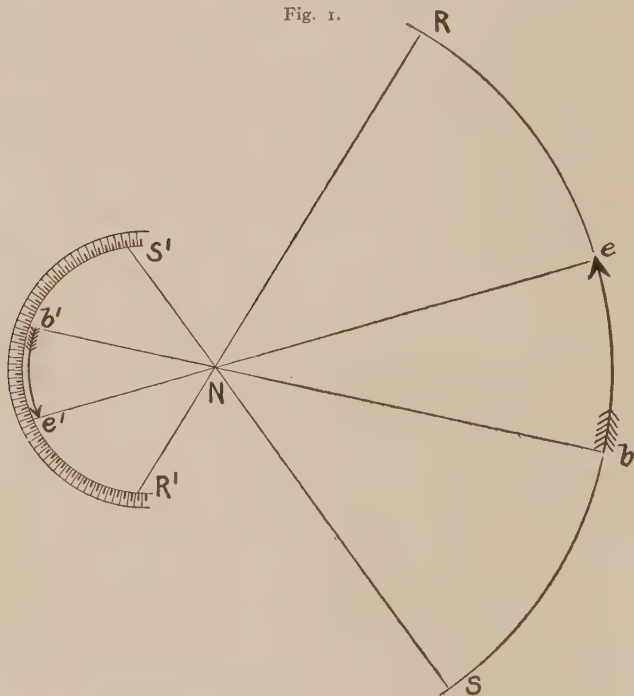
Perhaps a reference to the principle of the stereopticon will help us here. In the stereopticon a small representation of a scene is placed before a strong light. The light projects this representation out, enlarging it, and placing it on the distant screen. The mind acts in an analogous way with the images in our eyes; it refers them out to the objects about us, enlarging the images at the same time; only, of course, this projection of eye images is purely mental, no physical light or ether waves being involved at all.

This law of outward projection of the eye is, however, as LeConte points out, only a modification of a general law of sensation. This general law is that every impression brought to the brain along a certain nerve is referred back to the end of that nerve. Thus, when we hit the ulna nerve at the elbow, we feel pain in the little and ring fingers where the ends of this nerve are distributed. Furthermore, after a leg is amputated, an impression on the end of a nerve which formerly went to the foot is referred beyond the stump to the place where the foot, or the end of the nerve, formerly was. Now, what the mind does in connection with these nerves (sometimes referred to as nerves of common sensation) under these abnormal conditions it does with the optic nerve normally — that is, it refers the impressions or images it receives not simply to the ends of the nerve in the eyes, *but beyond, into space*.

The second law of our vision is known as the *law of visible direction*. We can describe this law better in connection with the diagram given herewith.

The curved line $S^1 R^1$ to the left represents the inside surface of the eye or the retina, where the ends of the optic nerve are distributed. The longer curved line $R S$ to the right represents the field of vision before the eye. The point N (where the various lines running between the two curves cross) represents the

Fig. 1.



lens of the eye. The various lines which cross at N represent rays of light entering the eye. The light from the point S , at the lower extremity of the field of vision, travels upward, passing through the lens N , and places an image of S on the retina at S^1 . The light from the point R , at the upper extremity of the field of vision, passes downward through the lens N

and places an image of R on the retina at R^1 . The light from c , the point of the arrow, passes through N and gives the image of the arrow point on the retina at e^1 . The light from b , the feathered end of the arrow, passes through N , crossing the lines from e , and places an image of the feathered end of the arrow on the retina at b^1 . It is easy to see then, how the upper part of the field of view must correspond with the lower part of the retina, and the lower part of the field of view with the upper part of the retina — that is, we see here not only how images of all objects in the field of view are formed in the eye, but that they are inverted in the eye. Now, we know from what we have already said about the first law of vision that these images are always projected from the eye, and seen in space, but at this place we want to know more particularly about the process by which these retinal images are projected. How, for instance, do we get them right side up when they are thrown outside the eye? The process has been explained as follows:

The retina or spread-out end of the optic nerve in the back of the eye, is made up of several millions of rods and cones standing side by side. Each one of these rods and cones has the property of referring back into space the light ray that entering the eye falls upon it; the light is referred back along the ray line, or nearly so, toward the place whence it came. For instance, the image of the point of the arrow on the retina at e^1 is interpreted to mean that there is the pointed end of an arrow out in space somewhere along the line $e^1 e$. The image of the feathered end of the arrow at b^1 is interpreted to mean that there is the feathered end of an arrow out in space somewhere along the line $b^1 b$. All the intermediate points on the retina between e^1 and b^1 are referred out in the same

way. We can easily understand, therefore, according to the second law of vision, how, though the images in our eyes are inverted, we can see them outside of the eye right side up.

Again, this property of the optic nerve is not peculiar to this nerve alone. It is only a marvelous refinement of a general property common to other nerves. Suppose while I stand with my eyes closed one person should push me with a rod from one side, another from another side, and so on. I should be able, by the part struck and the direction of the push, to tell the location of the different persons. Consequently, what makes the eye so remarkable in this respect, is the marvelous sensitiveness of the retinal nerve. Millions of rays of light may converge into our eye from all points before us and strike in different places on the retina, and yet we are able to refer each back into space along the line on which it came into the eye, and so reconstruct the whole scene in space again, right side up.

MONOCULAR OR ONE-EYE PERSPECTIVE

But what enables us to tell *how far out* we are to project these images? How are we able to tell whether we are projecting them as far as the object from which they came or beyond it? This is a question we have so far not raised. There is nothing absolute about the action of the mind here. It is purely a matter of judgment, based partly upon the *appearance* of the images, their distinctness, relative sizes, etc. The data thus offered, by which we are to judge of the distance of objects from us are often classed under different heads known as different modes of perspective.

1. **Atmospheric perspective.**—The farther an object is away from us the more air we have to look

through in seeing it, and accordingly the dimmer and bluer it appears. The trees near us are sharp in detail and may be bright green in color, but the farther they are away the more the details are obscured and the green gradually changes to blue. It requires only a few years' experience in childhood to enable us to give the right interpretation to these variations in the appearance of objects. In looking over the landscape we do not think the trees are of such different colors, varying from green to blue, but at once this variation in color means distance to us; the dimmer and bluer the trees, the farther away we know they are.

How important a means this atmospheric perspective is in enabling us to judge how far we are to project the images in our eyes, becomes evident when a person who has been living in the city, where the air is murky and obscure, goes to a mountain region where the air is very clear. He looks out on mountains before him and thinks he could walk to them in an hour—that they are only four or five miles away. But the mountaineer, accustomed to the clear air, tells him they are twenty-five miles away. The newcomer was projecting his images of the mountains five miles when he should have projected them twenty-five miles. If he had started to walk toward the mountains he would have said they kept receding, when, in fact, he would have been pushing his eye images farther and farther back toward the objects from which they came.

2. Mathematical perspective.—This means the variation in the apparent size of well-known objects, according to their distance from us. The railroad tracks converge to a point in the distance. In looking down a street the houses seem to diminish in size and the street to narrow to a point. As we look along a line of men, the nearer ones stand out large

while those farther away look small. We do not, however, say that the nearest man is full size and that the rest are a line of dwarfs diminishing in size to the farther end. In all such cases we at once interpret such variations in sizes as distance. What looks relatively smaller is farther away.

3. Focal perspective.—As we look from a near to a distant object, or vice versa, a change is required in the adjustment of the lenses in our eyes, to enable us to see each object distinctly. Now, this greater or less effort of adjustment to make a distinct image, according to the nearness or the distance of the object looked at, becomes a means of judging of the distance of the object. This means of judging of distance counts only for objects within a short distance, say, twenty feet. For objects beyond that distance the changes in the lenses are too slight to be taken account of.

4. In addition several other factors might be spoken of, such as variations in light and shade, one object standing before another, etc.

All we have said so far, we are now to note, would hold true if we had only one eye, or if we used each eye separately. It is an explanation of monocular vision only. In seeing with one eye, then, we find that we refer all the images in the eye out into space; we refer each part of the image out along the line on which it came in, and we judge *how far* we are to refer these images—that is, the distance of the objects—by means of the several kinds of perspective we have just described.

This means, moreover, that we have found here the explanation for the *appearance* of space—of one object standing out behind another—in all paintings or pictures made by hand. It is by means of these monocular kinds of perspective (with the exception of

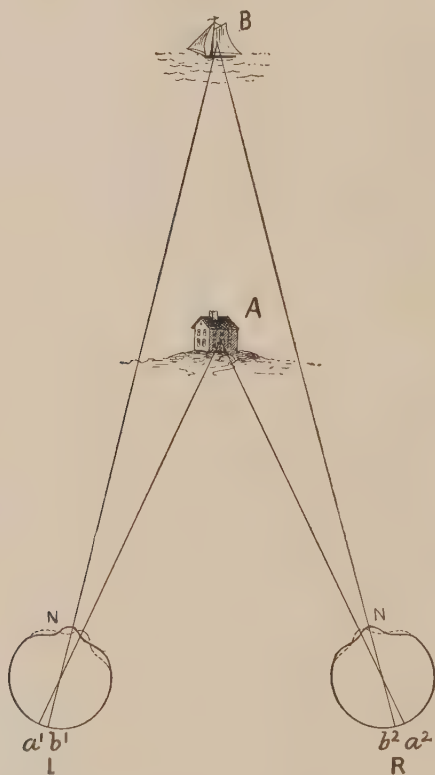
focal perspective) that the painter gives to his canvas the *appearance* of depth. He paints people large in the foreground and small in the background. He paints trees in the foreground sharp in detail, possibly bright green in color, while toward the background they grow dimmer and bluer in color and become in form a splotch without detail. Likewise, we find here the explanation for the *appearance* of depth in ordinary photographs made by a single-lens camera. The photograph made by the one-eye or single-lens camera shows us the dimness of the distant objects, the apparent variations in their size, etc. We are entirely dependent on these kinds of perspective for whatever appearance of depth or distance we get in ordinary photographs.

BINOCULAR, OR TWO-EYE VISION

So far, as we have just said, we have sought only to understand the process of seeing with one eye. But we have two eyes which we use together. Of what benefit is the second eye? As we pointed out in a preliminary way on page 25, this is a question that ordinarily is never raised. For most people two eyes suggest only a wise provision in case one is lost. There are, though, as we have said before, far more important advantages that come to us from the use of a second eye. In a word, it gives an added means of judging of the shape of things and the distance of things from us—that is, a means of projecting more accurately the images in our eyes to the objects from which they came. This further help is known as *binocular*, or two-eye perspective. To understand clearly the help the second eye gives, we shall need to use a diagram and plot out in a graphic way the processes of binocular vision—the processes by which we see near and distant objects with two eyes.

Let L and R stand for the left and right eye respectively, and the house A be one near object and the boat B a more distant object. At first we will consider the process of seeing these two objects by means

Fig. 2.



of the left eye alone. Light, we know, travels in a straight line. Thus, as the left eye L turns toward the house A, light waves reflected from A would travel in a straight line to this eye and passing through the lens N impress an image of the house, a^1 , in this eye L; as the eye L is turned toward the boat B, light

waves from B would travel in a straight line from B and impress the image of the boat, b^1 , in the eye. These images reflected from A and B start, we may say, as large as the objects and diminish as they approach the eye, being practically a point when they pass through the eye lens, after which they enlarge somewhat when they reach the retina. (See Figure I.) Reviewing now what we have gone over, we know we would not see the small images a^1 or b^1 in the eyes, but at once, according to the first law of vision, these images would be seen outside the eye, and according to the second law of vision they would be seen out along the same lines, a^1A or b^1B , on which they came into the eye. How far out we should project them along these lines, if we were using this one eye only, would be approximately determined by the appearance of the images—that is, by the several kinds of monocular or one-eye perspective of which we have spoken, atmospheric, mathematical, etc. As we have already said, there could be nothing absolute about this. It would be simply a matter of judgment based on the appearance of the images.

Now, let us open the right eye R and turn it toward the house A. At once waves of light traveling from A along a straight line would place an image of the house, a^2 , in this eye, and then as this eye R is turned toward the boat B it would receive an image of the boat, b^2 . As we might suppose, the first two laws of vision hold for the right eye as they did for the left. The images, a^2 and b^2 , in the right eye are referred out into space and out along the lines, a^2A and b^2B by which they entered. But, if we project out two images of each object, one from each eye, why do we not see all things double?¹ For the reason that when

¹ As a matter of fact, we do have double images of nearly all objects excepting the one upon which both eyes are fixed. We are sel-

we have both eyes turned toward any one object, as A, we refer the two images received from it, a^1 in one eye and a^2 in the other, back along the lines a^1A and a^2A , on which they came, back, that is to say, as near as possible to the object itself. There the two images are superimposed and seen as the one object A.

BINOCULAR OR TWO-EYE PERSPECTIVE

There are two features of our two-eye vision as outlined above, to which we should give particular attention.

First, as we look from near to distant objects, and vice versa, there are regular changes in the movements of our eyes. By reference to our diagram, or to our everyday experience, we see that both eyes always turn more toward the nose, or converge more, when we look at near objects, and turn more away from the nose, or diverge more, when we look at distant objects. Now, though we may not realize it, our mind is distinctly aware of these regularly varying eye movements, and by this means we gain a far more distinct idea or perception of how far objects which we are looking at stand out from us and from each other in space.

Second, because our eyes are from $2\frac{1}{2}$ to $2\frac{3}{4}$ inches apart, each must receive somewhat *different* images of all near solid objects and of their positions relative to each other. A good way to demonstrate this is to hold this book closed at arm's length, directly before you, the back towards you. Shut the right eye and look with the left only; you see not only the back, but also part of the cover on the left side. Close the left eye and look with the right, keeping the book in the same position; you now see the back and a part of the

dom conscious of these double images, though they play an important part in our perception of space.

cover on the right side. Look with both eyes; you get an impression of both covers at once, as well as the back. You practically see part way around it; consequently it looks solid, as if it had, in truth, thickness as well as height and breadth.

By a glance at our Figure 2, we can see in the same way that the images of A and B received by the right eye will show somewhat more on the right side and less on the left side of these objects than the images received by the left eye. That is, since the right eye looks more directly at the side of the house, it would see the gable somewhat more foreshortened; and as the left eye looks at the gable more directly, it would see the side of the house slightly more foreshortened. Of course the differences in the images would increase in proportion to the nearness and smallness of the object.

When, on the other hand, these somewhat different images are referred back from the eyes to the objects it is only the parts common to each that are superimposed, and the dissimilar parts extend, one around on the right and the other on the left side. "By means of these two different views of an object, the mind, as it were, *feels round it* and gets an idea of its solidity. We clasp an object with our eyes as with our arms, or with our hands, or with our thumb and finger, and then we know it to be something more than a surface."

These means of perceiving the distance and solidity of objects are, it is easy to see, not only in addition to, but also entirely different from, all that could be furnished when we use either eye alone. Each is a distinct factor playing a definite part in two-eye vision.

It is well to note here that few realize how great is the difference between one and two-eye vision. Most

people are likely to shut one eye and hastily declare that they get about as good an idea of the distance of objects as when both eyes are open. There is a fundamental difference, however. The reason why we make this mistake is that we read into what we can see with one eye what we have learned with both eyes open. In this way it is easy for us to overlook the deficiencies of one-eye vision. Special attention is required to make us aware of these deficiencies. The following experiment is a surprise to most people who try it. Let some person hold a pencil, point upwards, a little less than arm's length before you. Shut one eye, and holding another pencil with the point downwards, lift your arm and then lower it, trying to bring the two pencil points together. By chance they may come together, but they are more likely to be from one to two inches apart. With both eyes open you can easily bring the pencil points together at every trial. Later on we can bring out the difference between one- and two-eye vision in a striking manner.¹

One fact about binocular perspective should be noted here, namely, that it is of *direct* service to us only for objects within a few hundred yards.² For all objects much farther away, whether a half mile or five miles, the two eyes are looking out along practically parallel lines, so there can be no appreciable difference in the images received by each eye and practically no change in the convergence or movements of the eyes. Still, this limitation means far less than we might suppose; first, because generally the objects we care to see clearly are within a few hundred yards, and second, our estimate of the size and

¹ One of the most effective ways of seeing the deficiencies of one-eye vision or monocular perspective is to compare in the stereoscope pictures with and without stereoscopic effect. Underwood & Underwood publish several such pictures.

² Prof. Stratton finds the limit of stereoscopic relief to be about 580 meters. See *Psychological Review*, Vol. V, No. 6, page 632.

distance of objects farther away is based mainly on the accuracy of our judgment as to the distance and size of nearer objects.

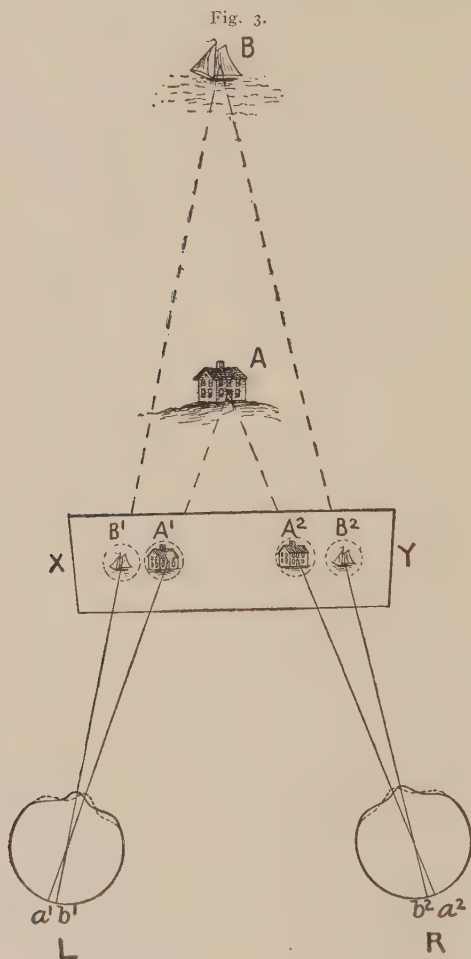
This finishes our study of our vision of things themselves. In this study of our actual vision we have found that we are really dealing *immediately* only with the images of the things rather than the things themselves—images which are first reflected into our eyes from the objects and then referred back toward the objects. Farther, we have found that a person with two eyes can give these images, as he refers them out, a form and position in space that correspond far more nearly to the form and position of the objects themselves than is possible to a person with only one eye.

VISION IN CONNECTION WITH BINOCULAR PICTURES, OR STEREOGRAPHS

Now we are ready to take up the study of our vision in connection with the stereoscope and stereographs. It will be wise for us to begin with a further study of Figure 2, modifying it so as to bring out both the likeness and the difference in the methods and conditions of our everyday two-eye vision of things themselves and our vision in connection with stereographs.

In Figure 3 we have varied the conditions as shown in Figure 2 by placing a piece of cardboard, *x y*, six inches before the eyes. If this cardboard were intact, no light of course could reach the eyes from *A* and *B*; no images could be formed in the eyes. The house and boat would be hidden behind the cardboard. Now let us suppose, first, that an opening is made in the cardboard in line between the house *A* and the left eye *L*—an opening as large as the image of the house would be at that distance from the

eye. Then light would reach the left eye from A and form an image of A there. This means that the



house A could be seen by the left eye through the opening in the cardboard. Then let a small opening be cut in the cardboard between the right eye, R, and

the house, A; then the house behind the cardboard could be seen by the right eye. Let openings also be cut in the cardboard between the more distant boat B and each eye respectively, so that, as the eyes are turned in that direction, the distant boat B could be seen through the cardboard. Now let us suppose a camera placed at the opening between the left eye and the house A and so adjusted that we could obtain an impression of the house on the negative of the same size as the opening in the cardboard. After developing the negative and getting the picture of the house from it, let us fit this picture, A^1 , turned toward the eye, into the opening in the cardboard. *Now this picture is capable of reflecting images of the house into the left eye as did the house itself.* These images would show no color nor motion, but they would be the same size as those from the house A, and would travel into the eye along the same line. Suppose further a camera were placed at the opening in the cardboard between the house A and the right eye, and that the picture of the house thus taken, A^2 , were placed in the opening and turned toward the right eye. Again, this picture would be capable of sending images of the house along the old line Aa^2 into the right eye. Moreover, this picture of the house would differ from the one before the left eye. Being taken farther to the right it would show more around the right side and less around the left side of the house than A^1 .

The next question is, What will the mind do with the images of the house A, reflected into the eyes from the pictures in the cardboard? They will certainly be referred out of the eyes, according to the first law of vision, and out along the lines $a^1 A^1$ and $a^2 A^2$, according to the second law of vision. But *how far* will they be re-

ferred out? Only to the pictures A^1 and A^2 in the cardboard, from which they were reflected, and be thus interpreted as two ordinary flat pictures of the house six inches away and a short distance apart? *No; it is found that the mind refers these images right back beyond the cardboard along extensions of the lines $a^1 A^1$ and $a^2 A^2$ to the point where the lines meet; the images are there superimposed, and seen as one solid house A, at the same distance from the eyes and of the same size, as though the images had been reflected from the actual house there rather than from the picture-surfaces near the eyes.* It follows, then, that if pictures of the boat B were taken in like manner at the openings in the cardboard between the boat and the left and the right eye, and these pictures were placed in these holes, the images, b^1 and b^2 , coming to the eyes from the pictures of the boat, would be referred beyond the cardboard again and be seen as one solid boat B, at the same distance from the eyes and of the same size, as though the images had been reflected from the actual object there, rather than from the picture-surfaces.

It could easily be shown that what we have found to be the action of our eyes with relation to the pictures of the house A and the boat B would be the same with relation to the pictures of every other object in the field of view. In other words, let us suppose that openings $3\frac{1}{4}$ inches square be cut in the cardboard, one before each eye. Then, of course, a considerable field of view beyond the cardboard would be opened to each eye. Now let us suppose a camera be placed before each eye and so adjusted that we obtain on the negatives impressions of this field of view of the same size ($3\frac{1}{4}$ by $3\frac{1}{4}$ inches) as the openings in the cardboard. If now these negatives were developed and the pictures made from them were placed in the

openings in the cardboard, the pictures being turned toward the eyes, then these pictures would reflect into the eyes images of all the objects in the scene, as would the objects themselves. These images would show no motion nor color, but they would be of the same size as those from the objects themselves and would travel into the eyes along the same lines. Accordingly, as in the case of the images of A and B, the images of each object would be referred beyond the picture-surfaces, and be seen as one object, at the same point in space as when the images came from the object itself.

Here, then, we have a new fact about our method of projecting the images formed in our eyes. In our study of our vision of things themselves we found that images were reflected into our eyes from these things and then referred back to these things again; but here we find the images being reflected into our eyes from a picture surface and then referred out into space *beyond* this surface, where they take the same position and shape as when they came from the actual object. It thus becomes possible, we find, to provide all the essential conditions of two-eye vision of objects or places by means of pictures of those objects or places. We can so place pictures of objects, one before each eye, on an absolutely flat surface (every part of which is equi-distant from the eyes), that our minds will get the impression of *solid objects actually standing out at different distances in space beyond that surface*; that is, it is possible to get from the right kind of pictures of places or objects, placed before us in a certain way, impressions that are essentially like the impressions received by looking at the objects themselves.

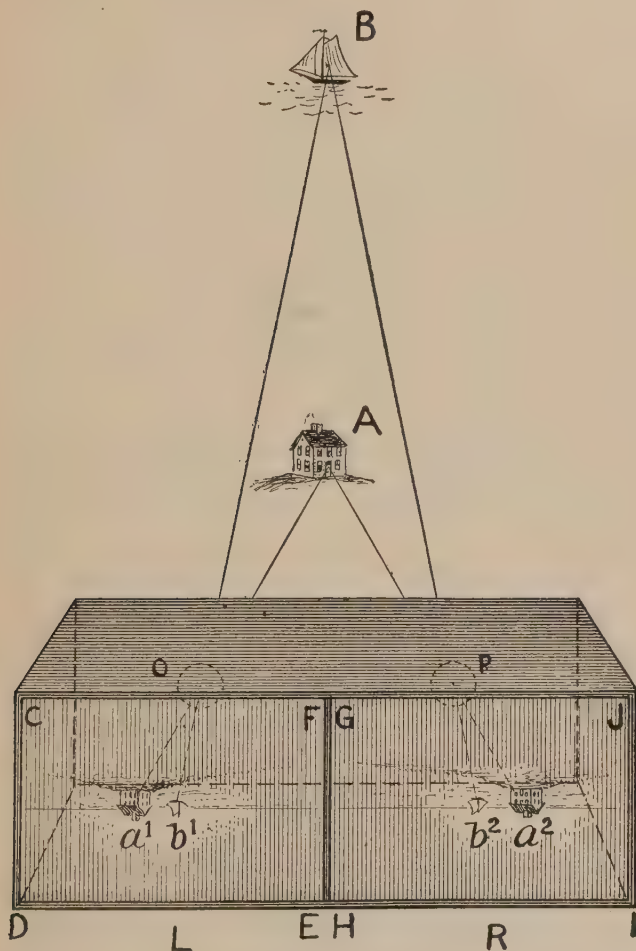
Now let us note more carefully, first, just what conditions must be provided in order that we may get these experiences of sight, by the help of pictures, and then, second, whether these conditions are provided

by the stereoscope and stereoscopic photographs. Turning again to our Figure 3 we see the conditions required are: 1. Two pictures of every object — one picture before each eye, as A^1 and A^2 , B^1 and B^2 . 2. The two pictures of any near (within 400 or 500 yards) solid object must differ as would the images coming to each eye from the object itself (the one for the right eye showing more around the right side of the object and less around the left side than the images for the left eye). 3. The pictures of a near object, as the house A, must be nearer together (on the cardboard) than the two pictures of any more distant object, as the boat B. 4. The two pictures (as A^1 and A^2), of any object should be the same distance apart that the images that travel to the eyes from the object itself would be at that distance from the eyes. This, we can see, implies that the distance between the two pictures, as A^1 and A^2 , of any object may be less but not greater than the distance between the eyes, that is, $2\frac{1}{2}$ to $2\frac{3}{4}$ inches. The reason is found in the fact that the movements of the eyes are limited. We can converge our eyes toward the nose, or look straight ahead, but it is usually impossible for us to turn our eyes outward at a greater angle. 5. Each eye must be directed to its picture of the object and that only. For instance, the left eye L must be directed to the picture A^1 and the right eye R to the picture A^2 . 6. It would appear also that the size of the two pictures must be the same as would be the size of the images coming from the object itself, at the same distance from the eyes.

We proceed now to see whether these conditions are provided in the stereoscope and the stereograph. This means first of all, that we must consider how stereographs are made. As we have already said,

stereographs are made by a stereoscopic or double camera, the two lenses being separated by about the

Fig. 4.



same distance as that between our eyes. As a matter of fact, in standard cameras this distance is $3\frac{1}{4}$

inches, a distance slightly greater than the distance between our eyes ($2\frac{1}{2}$ to $2\frac{3}{4}$ inches). The reason for this will be given later. Let us consider a diagram of such a camera, Figure 4, and follow the method of its working and note the nature of the pictures made by it.

L stands for the left, and R for the right, camera. O is the lens in the first and P the lens in the second. C D E F is the photographic plate or negative for the lens O, and G H I J for the lens P. We will consider that these plates are six inches back of the lenses, that is, that the cameras are of six-inch focal length. The house A stands for any one near object before the camera and the boat B for any one distant object (not farther away, however, than 300 or 400 yards). Light would be reflected from the house A through the lens O and falling on the plate C D E F place an image of the house a^1 , at the point indicated. Light from A would also pass through the right lens P, and falling on the plate G H I J, place another image of the house a^2 , on that plate. Light from the more distant boat B would go through the lenses O and P along lines more nearly parallel, and so in passing through the lenses would cross the lines from the house A and place images of the boat, b^1 and b^2 , on the plates at points *nearer together* than a^1 and a^2 , the two pictures of the nearer house A (though for effect this difference in the distance between the two pairs of images is considerably exaggerated in this and the following Figures).

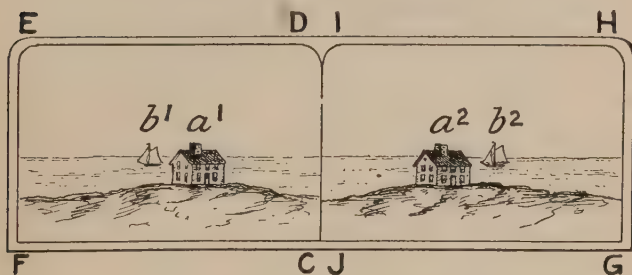
Besides, as anyone who uses a camera knows, and as the diagram shows (compare also Figure 1), the impressions of all objects fall on the photographic plate upside down, and this means also reversed from right to left. Now let us suppose that these negatives, C D E F and G H I J, are turned right side up,

and that pictures are made from them. Figure 5 represents these two pictures, E F C D, the picture made from the left-hand negative, and I J G H, the picture from the right-hand negative. In other words these two pictures represent what is known as a stereograph.

Turning now to the requirements referred to in connection with Figure 3, it is easy to see that the first one is provided in this stereograph made by the stereoscopic camera. That is, it gives us two pictures of each object, one for each eye.

Likewise it is easy to see that the second condi-

Fig. 5.



tion is fulfilled. It is evident that the two pictures thus made of any solid object (within 400 or 500 yards) will differ practically the same as would the impressions each eye would receive, for the reason that the pictures are taken from points about the same distance apart as the eyes.

The third condition, that the two pictures of a near object must be nearer together than the two pictures of a more distant object, is also fulfilled. On the two negatives of the stereoscopic camera, Figure 4, the two impressions, a^1 and a^2 , of the house A, were farther apart than the two impressions, b^1 and b^2 , of the more distant boat B. But when these negatives

were turned right side up the relations of a^1 and a^2 , and b^1 and b^2 , were reversed, as is seen in the two pictures, Figure 5, made from these negatives; a^1 and a^2 , the pictures of the house, are nearer together than b^1 and b^2 , the pictures of the more distant boat (though, as said above, the difference in the distances between the pictures of foreground and background objects is considerably exaggerated in these drawings).

The fourth condition, however, the condition that the two pictures of an object shall be not farther apart than the eyes, we find is not fulfilled. If we examine stereographs of what may be called standard size, such as are put on the market and such as we have been considering in connection with Figure 5, we shall find that the distance between the two pictures like a^1 and a^2 , of any nearer object, is a little over three inches, or greater than the distance between our eyes. The distance between the pictures of distant objects is then, of course, a little greater still. This is due to the fact that the distance between the two lenses of the stereoscopic camera is greater than the distance between the eyes, as noted on page 50. One reason for making stereographs of this size is that they may include a larger field of view. The difficulty in the way of seeing them properly is then overcome by the use of prisms in the stereoscope.

The stereoscope is needed also to fulfill the fifth condition, that is, that each eye must look at the picture placed before it and at that only. We assumed in considering Figure 3 that each eye could look at the picture placed before it, the left eye L toward A^1 and the right eye R toward A^2 , but as a matter of fact, it is impossible for most people to so direct their eyes. The tendency is for both eyes to

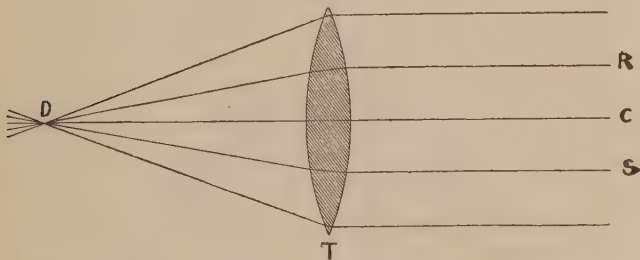
turn to the same picture. If the left eye turns toward the picture A^1 , the right eye turns there also. As we are to see, the construction of the stereoscope obviates this also.

Fig. 6.



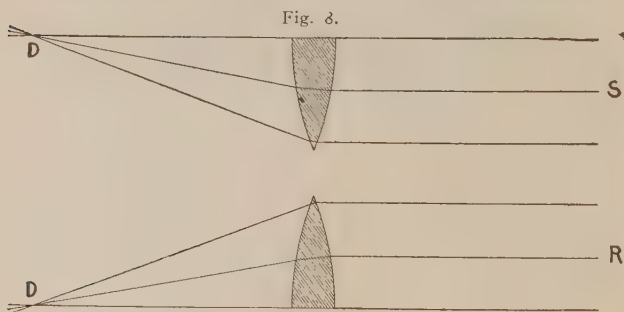
Next, then, we must take up the stereoscope. We shall assume that all are familiar in a general way with the several features of the stereoscope as shown in Figure 6:—the hood, the lenses, the sliding view holder, etc. One of the features necessary for us

Fig. 7.



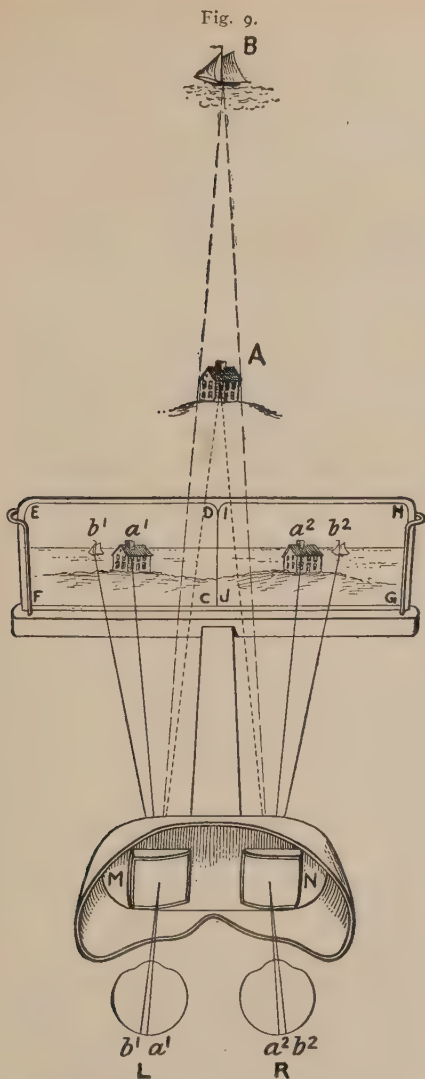
to consider particularly is the prisms or more accurately, lens-prisms. These are, in fact, the two halves of what is known as a double convex lens — see Figure 7. We should know the simple facts about such a lens,

T stands for a double convex lens, made of glass or some other transparent substance. DC, the line drawn through its center, is called its axis. The peculiar property of such a lens is that parallel rays of light, represented by the parallel lines, in passing through it are so changed in their course that they cross at some one point on the axis, as D. A light ray passing through the center of the lens, that is, along the line of the axis, keeps its direction unchanged, but every other one of these parallel rays, on either side of this axis, as the ray R or the ray S, is turned, we



see, if we follow its course, toward the axis, or toward the thicker part of the lens. The distance from the lens to D, the point on the axis where all the lines cross, is known as the focal length of the lens. The focal length varies according to the degree of the lens's curvature. If this curvature is increased, the point D where the parallel rays cross, is nearer the lens; if the curvature is decreased D is farther from the lens.

The lenses or lens-prisms used in the stereoscope are the halves of such a double convex lens, these halves being trimmed and set with their thin edges turned toward each other. See Figure 8. Examine also the lenses in a stereoscope.



By following the course of any one of the rays of light in this figure, as R or S, we see again that in

passing through either of these lens-prisms it turns toward the thicker part, or axis, of the lens-prism.

Now we will turn to Figure 9 to see the part these lens-prisms play in the stereoscope.

In this figure L stands for the left eye and R for the right eye; M and N for the two lens-prisms; E F C D being the left-eye half of the stereograph, and I J G H the right-eye half of the stereograph. a^1 and a^2 are the two pictures of the nearer house and b^1 and b^2 the two pictures of the more distant boat. Now, light reflected from a^1 to the lens-prism M would in passing through it be bent, as we have found, toward the thicker portion of the prism. Certain ones of these rays would take such a direction after passing through the prism as to fall into the eye L, and place there an image or picture of a^1 . According to the first and second law of vision, then, this picture would be referred out of the eye and out in the direction it came into the eye; that is, it would be seen in the direction taken by the dotted extension of the line from a^1 in the eye L, or as though this image had been reflected from the point on the stereograph surface pierced by this dotted line rather than from a^1 . (It should be remembered that this reference or projection of images *from* the eye is purely mental, having nothing to do with physical light waves, and, therefore, the lens M changes in no way the direction in which these images are referred.) In a manner like that described above light would travel from a^2 on the right-eye side of the stereograph to the lens-prism N, turn somewhat toward the thicker portion of this prism in passing through it, and place a picture of a^2 in the right eye. This picture would be referred out in the direction of the dotted extension of the line from a^2 in the eye R, or as though this image came from the point on the stereograph sur-

face pierced by this dotted line rather than from a^2 .

Further, from what we have already found to be the action of the mind under these conditions, the image of a^1 in the left eye and the image of a^2 in the right eye would be referred to a point in space *beyond* the stereograph where the dotted lines meet and be seen there as a representation of *one solid house A*.

In an analogous way rays of light reflected from b^1 and b^2 the pictures of the more distant boat, would change their directions in passing through the lens-prisms M and N and the images of b^1 in the left eye and b^2 in the right eye would be referred out in the direction of the broken extensions of the lines from these images in the eyes. In fact, these images would be referred to the point where the two broken lines meet and be seen as a representation of *one solid boat B*.

It thus becomes evident how the fourth condition spoken of on page 48 can be fulfilled in the stereoscope. Though the two pictures of objects on the stereoscopic card are further apart than the eyes, we can, by the use of lens-prisms of the right degree of curvature, bring them as near together as we wish.¹

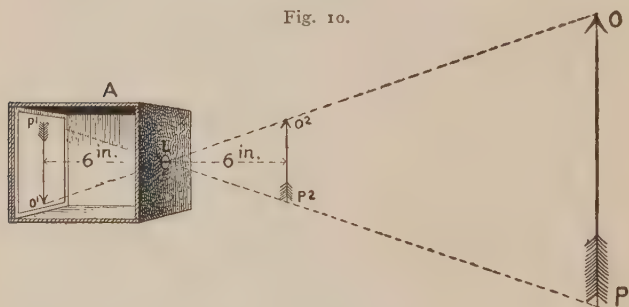
Coming to the fifth requirement spoken of on page 48, namely, that each eye must be directed to the picture intended for it and that picture only, a difficult thing for most people to do, we can see how this is made possible to all by a certain feature of the stereo-

¹ In most of the stereoscopes put on the market to-day the curvature of the lens-prisms is such that the eyes converge somewhat more than they would in looking at the object or scene in nature. It would naturally be supposed that this would locate objects nearer than normal vision and tend also to make them appear smaller. However, careful experiments with a stereoscope so constructed as to permit a normal and even more than normal divergence of the eyes have shown no variation in the estimate of size. It appears that so long as the relative difference in the convergence for near and far objects is provided for in the stereoscope, even a considerable increase or decrease in the convergence for both near and far objects alike is of little or no consequence in the estimate of size or distance.

scope. Turn to Figure 6 and note the division piece extending from between the lenses in the hood toward the stereograph. This division piece prevents any light from the left picture reaching the right eye, or any light from the right picture reaching the left eye. Each eye can receive impressions from the picture placed before it and that only.

We now come to the sixth and last condition to be fulfilled, that is, that the size of the two pictures to be placed before the eyes should be the same size as the images coming from the object itself, at the same

Fig. 10.



distance from the eyes. At first we can say that this condition can be fulfilled in the stereoscope when the focal length of the stereoscopic camera, that is, the distance from the lenses to the negatives, is the same as the focal length of the stereoscope, that is, the distance between the lenses of the stereoscope and the stereograph. This can be made clearer by the use of a diagram.

A stands for a camera, L for the lens, and O P for the arrow to be photographed. The distance from the lens to the negative at the back of the camera, or the focal length of the camera, is six inches. We understand how light from O, the point of the arrow, would pass through the lens L and falling on the plate im-

press the image o^1 of the arrow point O at the point indicated, and how light from P, the feathered end of the arrow, passes through the lens L and places the image p^1 on the plate at the point indicated. All intermediate parts of the arrow would be pictured on the negative in the same manner. Now it ought to be clear to anyone that the impression $o^1 p^1$ of the arrow gotten on the negative six inches *back* of the lens L will be of the same size as would be the images coming to the camera from the arrow when they were six inches *in front* of the lens L. This can easily be proved by geometry but it is a practically apparent fact. That is, we can say that if the eye be placed where the lens L is, and if a picture, $o^1 p^1$, of the arrow be made from the negative and this picture be placed six inches in front of the eye, then evidently this picture of the arrow will send images to the eye of the same size as those that would come from the arrow itself. The dotted line $o^2 p^2$ six inches in front of the lens L shows the required position of the picture.

It will now be easily seen that if the two pictures made by a six-inch focal length stereoscopic camera are looked at in a six-inch focal length stereoscope, that is, a stereoscope in which the stereograph would be for clear vision placed six inches in front of the eyes, then the sixth condition will be fulfilled. The images of objects thus furnished to the eyes in connection with the stereoscope and the stereograph will be of the same size as those that would come to the eyes of the observer from the object itself.¹

¹It is found, though, that when the focal length of the camera and stereoscope do not correspond, the mind does not usually get erroneous ideas of the size of objects. If, for instance, we should make a stereograph of an object with a twelve-inch focal length camera, which would give a picture of this object twice as large as the six-inch focal length camera, and look at this stereograph in a six-inch focal length stereoscope, it might at first be supposed that the mind would in-

We find, therefore, that all the conditions spoken of on pages 47, 48, that is, all the essential conditions given us by our two eyes in actual vision for our judgment of space and solidity, of the distance and size of objects, can be provided by the stereoscope and stereographs.

VISION IN CONNECTION WITH MONOCULAR OR ORDINARY SINGLE PICTURES

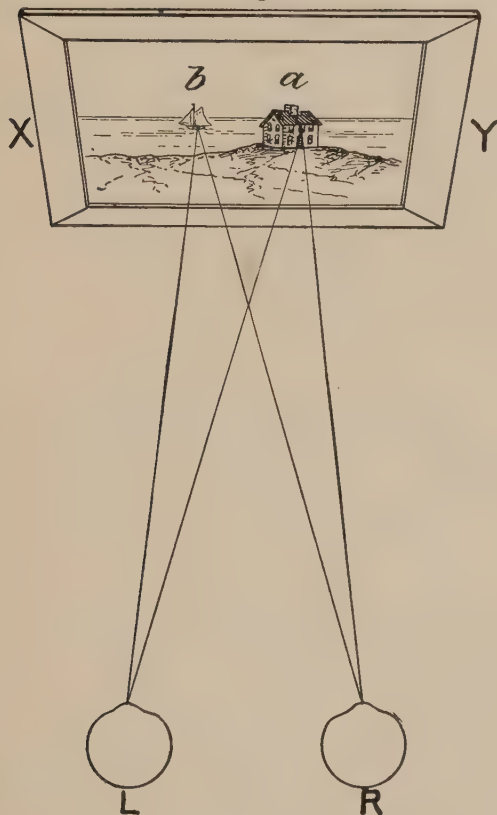
Let us now note by contrast the action of our two eyes in looking at any ordinary single photograph or at a painting, and see how such photographs or paintings fail to provide the two essential conditions of actual two-eye vision or the two features of two-eye perspective — that is, a different image for each eye of all near solid objects, and a difference in the convergence of the eyes as we look at near and more distant objects.

XY is an ordinary single picture about two feet in front of the eyes, L and R. a is again the representation of a house in the foreground, and b the representation of a boat in the background. It is easily seen that whether the eyes are turned toward the representation of the nearer house a, or of the distant boat b, the point to which our eyes are turned must always be *on the surface* of the picture two feet away. There will be, therefore, no variation in the convergence of the eyes, no turning of the eyes away from the nose for the distant objects and more towards the nose for nearer objects, as we have found to be true in ordinary vision or in looking at the double pictures of near

interpret the object as of twice the size. As a matter of fact, however, instead of interpreting the object as twice its normal size, the tendency is to interpret it as only half the distance away. This is true especially in all cases where objects of well-known size appear. The action of the mind here is analogous to its action in connection with an opera glass. The effect of the opera glass is not to make people appear as giants, but to bring them nearer.

and far objects in stereographs, Figure 9. In connection with the stereograph it was found not only that the eyes were diverged more in looking at pictures of

Fig. 11.



far objects than at pictures of near objects, but that in looking at the near objects even, the eyes were turned to points *beyond* the surface of the stereograph card. Second, it is evident that in looking at the image of any object, as *a* or *b* in an ordinary picture,

as in XY in Figure 11, there can be no difference in the images of a or b that each eye receives. The ordinary single picture, therefore, fails to give us the two essential conditions, referred to on page 40, of two-eye vision.

In so far as getting a sense of depth or space and solidity goes, then, the second eye is not only of no use to us in looking at ordinary illustrations or paintings, but it is a positive hindrance. It tends to locate all objects, near and distant alike, at the same distance from us; that is, upon the plane (or surface) of the picture, and thus weaken whatever appearance of depth and solidity such pictures contain. That is the reason we are told to look at paintings with one eye only, if we would get the best effect of space, distance and solidity.

VISION IN CONNECTION WITH PSEUDOSCOPIC OR TRANSPOSED BINOCULAR PICTURES

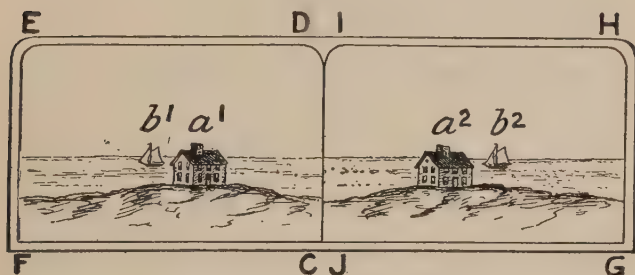
Fortunately, we are able to go a step further in showing the radical difference between one and two-eye vision, whether in actual vision of things or in pictures.

Let us return to Figure 3 on page 44 and note one more change in the conditions represented there. Suppose we take the two pictures of the house, A^1 and A^2 , and put them in the openings in the cardboard XY where the two pictures of the distant boat B were, and place the two pictures of the boat, B^1 and B^2 , in the openings where the pictures of the house were. Then we should have the two pictures of the boat nearer together in the cardboard than the two pictures of the house, and we should have the images of the boat coming into the eyes along the lines the images of the house formerly traversed, and the images of the house coming into the eyes along the lines formerly

traversed by the images of the boat. To what points will the mind now refer these images of the house A and the boat B?

Well, according to the two laws of vision we have already studied—the laws that images of things formed in the eyes are always referred out of the eyes and out along the lines on which they entered the eyes—the images of the boat B ought to be referred to the point where the house A was formerly seen, and the images of the house A to the point where the boat B was formerly seen. That is, our minds

Fig. 12.



ought to reverse the positions of the two objects—the distant boat B ought to be brought into the foreground and the near house A pushed into the background. Now, we can provide these conditions in the stereoscope by transposing the two photographs on the stereoscopic card; that is, by placing the left-eye photograph before the right eye, and vice versa.

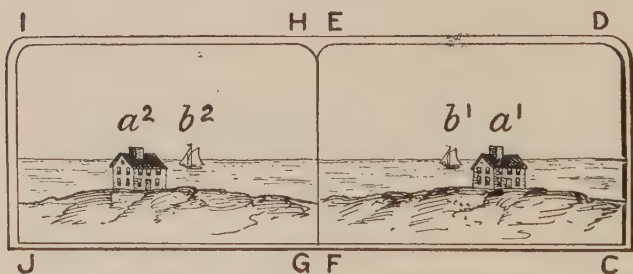
In Figure 12 we give an exact duplicate of the stereograph represented in Figure 5. In this stereograph we see that the two pictures, a^1 and a^2 , of the near object are nearer together than the two pictures, b^1 and b^2 , of the distant object.

Now, suppose we move E F C D, the left-eye photograph, to the right, and I J G H, the right-eye photo-

graph, to the left side of the stereoscopic card. See Figure 13.

You will notice now that the two pictures of the distant boat b^1 and b^2 are nearer together than a^1 and a^2 , the two pictures of the nearer house. As we have said above, when a stereograph thus mounted is looked at in the stereoscope, we ought to see, if our past reasoning is correct, the distant boat in the foreground and the near house in the background. When regular stereoscopic scenes thus mounted are seen in the stereoscope, objects stand out in what seems to be the most fantastic order. Persons that were near at

Fig. 13.



hand in the original scene are now pushed back through a distant mountain — the mountain being now brought near. The globe which stood out towards us like an orange is thrown back like the inside of an eggshell.

In looking at a stereograph thus mounted, we have the one-eye and the two-eye kinds of perspective working against each other. All the one-eye kinds of perspective, atmospheric, mathematical, etc. (page 34), are exerting their full force to make us see the landscape as we normally do, with the distant objects in the background, and the near objects in the foreground. But the two-eye forms of perspective, es-

pecially that resulting from the varying movements of the eyes, are exerting their force to reverse the position of things. For people with normal eyes the binocular quickly overpowers the monocular, and they see the scene reversed; especially is this true of near objects. In some scenes or objects where the monocular forms of perspective are very strong, the two so nearly balance each other that all is confusion, or the monocular perspective may prevail. The reverse effect is very much heightened by turning the stereographed scene upside down. The reason for the heightened effect when this is done is this: Much of the force of the one-eye forms of perspective comes from having things presented to us in an order in which we always see them. By turning the stereographed scenes upside down, however, we get things out of their customary order and so weaken the one-eye kinds of perspective, thus making it easier for the two-eye kinds to predominate.

This shows in a striking manner to what an extent we are aided in our location of objects in space by the two-eye kinds of perspective. Indeed, we have here absolute proof not only that the binocular is different from all the monocular kinds of perspective, but also that, for most near objects, they are stronger than all the others. That is, what the ordinary picture gives of the effect of space and solidity is less than what it leaves out, and what the stereoscope and stereograph add is more than the ordinary picture gives.

Finally, then, we are in a position to realize, as a practical fact, that every object we see when we look at stereographed scenes in the stereoscope, is as really *back of the stereoscopic card*, to our consciousness, as the objects we see when we look through the window are back of the window pane. Our minds are dealing

with *spaces* in the stereoscope, not flat surfaces. All pictures in which lights and shades are properly managed have more or less of the *appearance* of space for the mind, but in the stereograph we get what can be called *perfect space* for the mind. Differing on the one hand from the *appearance* of space in all ordinary illustrations, the perfect space given in the stereoscope is not, on the other hand, *actual* space into which we can stretch our hands. It can, however, as we shall show later, have to a large degree the same effect upon the mind as actual space.

STEREOGRAPHS INTERPRETED AS LIFE-SIZE REPRESENTATIONS

Before closing this chapter we should give particular attention to the remarkable fact, referred to on page 26, namely, that the stereograph becomes not only what we have called *perfect space* to the eyes in the stereoscope, but a *life-size* space, a life-size representation, the object or landscape being represented in natural size and at natural distance. In this chapter various diagrams have shown us how the double photographs of the stereograph, about three by three inches in size, and about six inches from the eyes, serve as two windows *through which* we look and *beyond which* we see the representation of the object or place, standing out as large as the original object or place would appear to the eyes of one looking from the spot where the camera stood.

Many people, however, have been in the habit of speaking of stereographs as little pictures. Some even ridicule the idea that they can be considered in any other way. This is often due to a failure to appreciate the facts of our everyday vision. "What," said one man, "do you mean to say that you are able to get a great landscape on that small photograph? Impos-

sible!" And yet he never saw a landscape so large that it was not being crowded, with all its infinite mass of detail, into a space little larger than a penny in the back of his eye. "What," said another man, "do you say that a great landscape is made out of these two small photographs on a stereoscopic card? Absurd." And still every landscape he ever saw was only an enlargement of images in his eyes, hardly an inch in diameter. It is not difficult to realize the possibility of seeing places and objects as large as in nature in the stereoscope, when we realize the miracle of our everyday vision.

There are those, however, to whom it really appears at first that they see only *miniature spaces* in the stereoscope. This is more likely to be true of people who are nearsighted. The chief reason though for this tendency on the part of some people to see things in miniature in the stereoscope, is found in the fact that in looking at stereographed scenes we are dealing with two scales of dimensions at the same time. First, we have the scale of dimensions of the place we are in, usually a room, including the stereoscope and the small stereoscopic card, and, second, the scale of the scene represented in the stereograph, which has no relation whatever to the scale of the room. Yet the natural tendency for many people is at first to carry over the scale of dimensions of the room and impose it upon the scene and the objects in the stereograph. They know the stereoscopic card is small, forming a small part of the room, and they assume that the scene must be small. They modify what they might see by what they think they ought to see. Even the letters in the title on the stereoscopic card can serve to keep them aware of the scale of the room. Often a letter in the title is as large as the representation on the

surface of the stereograph of a large object in nature and the tendency is to reduce this object to a tiny size. The right course, however, is to lose all thought of the room or place about one and of the objects it contains, and to give oneself wholly to the scene in the stereograph. We are to take note of the fact, once for all, that none of the objects seen in the stereoscopic scene are located to our minds on the surface of the small photographic prints held so close to our eyes, but that we see every object *back of these prints* as actually as if we were looking through transparent screens or windows. Then, with this fact observed and clearly in mind, if we give ourselves wholly to the stereoscopic scene, we shall soon get impressions of objects or places in the stereoscope as large as we would if looking at the original object or place through windows of the same size and at the same distance from our eyes.

We must conclude, then, that looking at a stereoscopic photograph is by no means as simple and commonplace an experience in human lives as it at first appears. Perhaps it would be a good idea for us to sum up the matter by considering one concrete case. Let us think of a person holding a stereoscope to his eyes with a stereograph of Italy (*The Forum and Capitol from near the Basilica of Constantine, showing the pavement of the Sacra Via, excavated in 1900*) before him. He is sitting in a chair within the walls of his own room, with the fields of his native country, or the streets of his native city, stretching away on all sides. What is his field of vision? Is it any of these material objects about him? Is it the small, flat material card a few inches from his eyes? No, no. He is looking right through the material card. His eyes are roaming over a rep-

resentation of nearly the whole Roman Forum stretching away hundreds of yards back of the small card. Within a few feet he sees represented the trench dug but recently through the black Italian soil, to open to the sky, for the first time in many centuries, the smooth-worn stones of the ancient Sacred Way. Beyond are the crowded ruins, the shattered walls and broken columns of the old, old Forum. We know his mind is feeling its way into the very depth of the scene. For his mind, it is a scene which extends right out through the walls of his room, extends for hundreds of yards out over the city or country beyond. It is as large as all out-of-doors. It is not a space into which he can stretch his hand, it is not a space filled with air which could be weighed, it is not a space which we could measure with a foot rule, but nevertheless it is a perfect space for his mind through his eyes. Surely we must always make the sharpest distinction between the small stereoscopic card and the large space representation that exists for a person in connection with the card and that serves for his field of vision. "We must grasp and hold fast to this fact as to the size of these representations when seen in the stereoscope, and as a necessary help to this, their location entirely separated from and back of the stereoscope card, if we are to be in a position to begin to judge of their usefulness."

But there is one other fact, already referred to in another connection, page 23, that we should emphasize here about "this painting not made with hands," which stands out before this person's eyes in the stereoscope — namely, that it is not only large in its proportions, but also according to human powers of observation infinitely perfect in details. Paintings, which are the creations of men's hands, may be mar-

velous, but this is miraculous. It is worthy the highest respect. "There is such a frightful amount of detail, that we have the same sense of infinite complexity that nature gives us. A painter shows us masses. The stereoscopic figure spares us nothing; all must be there, every stick, straw, scratch, as faithfully as the Dome of St. Peter's or the summit of Mont Blanc, or the ever-moving stillness of Niagara. The sun is no respecter of persons or things. This is one infinite charm of the photographic delineation. Theoretically, a perfect photograph is absolutely inexhaustible. In a painting you can find nothing which the artist has not seen before you, but in a perfect photograph there will be as many beauties lurking unobserved as there are flowers that blush unseen in forest and meadow. It is a mistake to suppose one knows a stereoscopic picture when he has studied it a hundred times by the aid of the best of our common instruments."

It has been truly said that such representations as this of the Roman Forum are "The greatest of human triumphs over earthly conditions, the divorce of form and substance." How perfect is the knowledge to be gained here! Who can doubt that "seeing a thing is worth a hundred descriptions of it!" We could profitably think much longer about this sun-painted canvas so full of thousands of details in perfect order. It is really impossible for finite minds to grasp the characteristics of anything so infinite. But we can know that nothing outside of the Forum itself offers as solid and sure a foundation for its study.

So far we have been considering the stereograph more particularly as a remarkable *representation* of places and objects, something non-material and unreal in itself, standing out before us in all the space di-

mensions and proportions of the places and objects themselves. We are now to take a further step in considering the nature of the experiences we may get in connection with these representations in the stereoscope.

CHAPTER V

EXPERIENCES OF TRAVEL WITH THE STEREOGRAPH

An experience of being in the place represented.—

We pass now to the last step in the consideration of the experiences people may gain in connection with the stereoscope and stereographs; that is, that they may gain not only experiences of sitting in their homes or in schoolrooms and looking at life-sized representations of places situated here and there around the world, but indeed that they may gain a distinct sense or experience of being in these places.

Such experience has been supposed impossible except in the place itself.—A statement of this kind is so extraordinary it is not to be expected that one person in a thousand could believe it at first. At the outset, most people would be inclined to ridicule such a statement or pass it by lightly. They would at once say, "No experiences I could gain with the stereoscope and some stereographs of Rome, for instance, could be compared with experiences of actually being in and seeing Rome. Stereographs of Rome are not Rome. There is an infinite difference between stereographs of Rome and Rome itself, and therefore there must be an infinite difference between my experiences of seeing the stereographs and seeing the place. To give me what could be called in any true sense an experience of being in and seeing Rome you must take me to Rome."

But the traveler seeks experiences of places, not places themselves.—The logic by which this conclusion is reached seems at first to be absolutely conclusive and final. The absence of the actual Rome

before one in the stereoscope would seem to make impossible anything more than a mere "make believe" experience of seeing and being in Rome. Yet it is precisely here that the student of the mind differs from the casual observer. You are making—he would say—entirely too much of the presence or absence of the real Rome. First of all, to get the matter clearly before our minds, we should understand that when we go as travelers to Rome, we do not go to get the material Rome, the hills and buildings and people. We certainly do not bring them away with us on our return. Yet we feel we have obtained what we went after. This is evidently our *experiences of being in Rome*. That is, we are to recognize, that, wherever we are we have to do with what may be called two kinds of realities, one objective—the material world about us, earth, buildings, people—and the other subjective—the states of our conscious selves, thoughts, emotions, desires. And, further, these places, buildings and people, which we are so likely to think of as the only reality, are, after all, *merely the means* of inducing within us those states of our conscious selves or our experiences of things (the subjective reality) which we seek in traveling.

Stereographs can give such experiences.—If it is the experiences of a place, and not the place itself, which we seek in traveling to it, if we seek the real place only as a means of giving us experiences of it, then we are prepared to see, that, if a substitute for the place can give us the experience, the place itself is not essential to us. Now the claim is that a stereograph of a place *can* serve as such a substitute for the place. It is true that there is an infinite difference between the place itself and the stereograph of it, as an objective or material reality; but (as we

shall see later), it by no means follows that it is impossible for the stereograph to arouse states of our consciousness that are essentially the same as those aroused by the place itself. There will be certain limitations in the experiences to be gained in connection with the stereograph (as we shall take account of presently), nevertheless, the experience is that of being in the place itself, rather than an experience of being in our home seeing a picture of the place.

An incisive statement of the possibility of this fact is given by Professor Lough of New York University. "The essential thing for us is not that we have the actual physical place before us as the tourist does, rather than a picture, but that we have some at least of the same facts of consciousness, ideas and emotions, in the presence of the picture, that the tourist gains in the presence of the scene. *This is entirely possible in the stereoscope.*"

Process of gaining experiences of places themselves.—It will aid us to understand *how* we can gain experiences of places when we are *apart* from them in this way, if we consider briefly, first of all, how we gain our experiences of places when we are actually in them. In a word, we obtain our experiences of things or places actually about us by means of impressions brought to our minds through our different senses. In the simplest language the process is as follows: Taking, for instance, the sense of touch—when an object comes in contact with any part of our body, an impression is given to our nerves of touch (the nerves of touch are scattered all over our body) and this impression is conveyed by the nerve fiber to our brain, the center of consciousness. This nerve impulse or disturbance, when it reaches the brain, is called a sensation. Against

this our mind reacts with consciousness, that is, our mind interprets it as meaning that some object, cold or warm, hard or soft, exists outside us, and in contact with a certain part of our body.

Impressions of touch, taste and smell require actual bodily contact.—But there is one radical difference, of particular interest to us in this connection, between the process of receiving sensations by means of three of our senses, and by means of the other two senses. To know how an object feels, that object must, as we have pointed out, come in *actual contact* with some part of our body. This condition holds also in regard to taste and smell. To know how an object tastes, it must come in *actual contact* with a certain part of our body, the tongue, and be liquefied there. There must be not only actual contact but liquid contact. To know how a substance smells, certain particles of that substance in gaseous form must come in *actual contact* with the nose; hence this is a case of gaseous contact.

Impressions of hearing and sight gained through a third medium, air or ether.—As we come to hearing, however, we find a radical difference in the process. We do not have the sounding body touch our ears; that would give us no impression of the sound the body is producing. A third medium is brought in. The sounding body produces certain vibrations in the atmosphere; these vibrations travel to us as waves of air, and when the air waves strike the drum of our ear we get the impression of the sound. We get our impression of sight by a similar process. In seeing an object, we do not have the object touch the optic nerve in our eyes. The only way in which we can get impressions of sight is for light waves to be reflected from an object and enter the eye and place an image there. (See page 29.)

This greatly extends the range of direct sense experiences.—Now this difference in the process of getting impressions through these two of our senses—sight and hearing—as compared with the process of getting impressions through the other three senses—touch, taste and smell—is of vast importance to us.

First, it is easy to see, that, if the mind could get no impressions of external objects unless these external objects came in *actual contact* with some part of our body, our experiences of things would be limited practically to the range of our bodily movements. To be sure, since the small particles of gaseous substances can travel through the air, we could get impressions of the smell of certain things that might be some distance away from us. But by making use of the third medium, air, in hearing, the mind is able to know of sounds produced at a distance—at as great a distance as sound waves can travel and be distinguished by the ear. And by making use of the third medium, ether, in sight, the mind can know the appearance of objects at as great a distance as light waves can travel and be distinguished by the eyes.

And makes experiences with the telephone and stereograph possible.—In the second place, it follows that since sounds mean (as far as our ear is concerned), certain vibrations in the air, then, if we can produce sufficiently similar vibrations in the air, we can hear the sounds when the sounding bodies are not present. It is this fact which makes the telephone possible. And since the sight of any object is a question of light waves reflected from it, then, if by any means we can start sufficiently similar light waves, we ought to get the experience of seeing the object, when the physical object is not present. It is in accordance

with this principle that we get the experience we have spoken of in the stereoscope. We get, in connection with the telephone, through the one sense of hearing, an experience analogous to that gained in the stereoscope through the one sense of sight. Our experience is no more unusual, no more extraordinary, in one case than in the other.

Process of getting experiences of sound by use of the telephone.—Let us consider a little more carefully for a moment the process by which we obtain experiences in connection with the telephone—our experience, for instance, while we listen in New York to a friend who is talking in Pittsburg. The friend in Pittsburg talks into the transmitter of his telephone, and certain waves of air come from his lips and strike a thin piece of metal in the transmitter, setting it in motion. Just back of this piece of metal is a wire with an electric current running through it. As the metal piece in its vibration comes closer to the wire, it induces a stronger electric current there; as it moves away the current diminishes. These differences in the force of the current are transmitted through a long-distance wire to the New York end of the telephone. At this latter place, the wire containing the electric current runs near another piece of thin metal, which is connected with the receiver that we hold to our ear. As the electric current in the wire increases in strength it has more power to attract; as it diminishes it has less power to attract this piece of metal; consequently, the metal is set in motion, and its vibrations, as we can readily understand, must correspond to the vibrations of the metal piece in Pittsburg. As a consequence, waves of air are started by the metal piece at the New York end of the telephone, which are in essential respects like those which come from the man's lips in Pitts-

burg. What now is the result with relation to our consciousness? Why, we are able to distinguish in these air waves, coming to our ear from a metal piece a few inches away, the very words being spoken by our distant friend. These air waves make essentially the same impression on the nerves of our ear as would the air waves from our friend's lips in Pittsburgh. We can distinguish the peculiar tones of our friend's voice, and not merely that, but *he* seems to be close to us. No matter if his body is miles away, nevertheless, we can have a distinct consciousness of his real self being near; we feel we are in his very presence.

The point to which we want to call particular attention is, that, while there is an infinite difference between the living lips and vocal chords of the man speaking in Pittsburgh and the piece of metal near our ear, yet there is no essential difference between the air waves that the piece of metal or the man's lips can send to our ear. Consequently, we can understand how it is, that, in listening to the telephone, our thoughts, our feelings—the whole state of our consciousness is, that we are in the presence not of a machine that gives out articulate sounds, but of a man. Through all our life, when certain air waves have struck our ear, it has meant that a human being was close at hand. So now, even though we know the air waves come from the telephone only, we still, in accordance with our habit, have the old responding state of consciousness, feeling and all, that we are listening to a man.

Process of getting experiences of sight by use of the stereograph.—Now let us consider in like manner the process by which we get our experience of sight in connection with the stereoscope and stereograph. First, the photographer places his stereo-

scopic or two-lens camera before some part of the earth. Rays of light or ether waves, reflected from every part of the scene, rush through each of the two lenses of the camera and impress an image of the place, wonderful in its accuracy, on each half of the stereoscopic plate. This plate is developed, and these images are transferred with all the infinite accuracy of the sun's rays to the stereograph. The two images on the stereoscopic card are then placed before us in the stereoscope, one photograph or image before each eye. These photographs are now capable of reflecting light into our eyes, of starting ether waves, which are, in all important particulars, like those that the real scene reflected into the camera. Thus images are reflected on the retinas of our eyes, which are in all essential particulars like those which would have been reflected into our eyes in the presence of the real scene. Here again, we are to see, that, while there is an *infinite difference* between the stereograph and the place itself, still there is *no essential difference* between the light waves which the stereograph and the real scene can reflect into our eyes. Consequently it is only rational to expect that, sometimes, while looking at stereographs our state of consciousness would be, not that we are in the presence of some pasteboard and paper, or a "picture" or representation only, but *in the place itself*. Through all our lives, when such waves of light have struck our eyes, it has meant that the real objects were close at hand. And so now, though we know the light waves come from a stereoscopic card only, we still are, in accordance with our habit, inclined to have, and may have, the same responding state of consciousness, feelings and all, that we are looking at an actual place—that we are in the presence of that place and its surroundings.

THE LIMITATIONS OF TRAVEL EXPERIENCES WITH THE STEREOGRAPH

1. **We do not get the traveler's experiences of movement.**—Before going further, we must speak of the limitations of this stereoscopic experience as compared with the experiences of the actual traveler. First of all, it is, of course, not possible to gain, in connection with the stereoscope, the traveler's experiences of movement. We are limited to such experiences as the traveler might get while standing still in certain places, with definite fields of vision. For instance, in a tour of Palestine, by means of the stereoscope and stereographs, we are enabled to take, say one hundred or one hundred and fifty definite positions there, and look out over definite though limited fields of vision.

2. **Nor his impressions of touch, taste, smell or hearing.**—Obviously, also, we shall not be able to get any impressions through our senses of touch, taste, smell or hearing; we can get impressions of sight only. Very little reflection is required, however, to show that our different senses are not all of equal importance in the experience of the traveler. Indeed, we should realize not only that sight is more important than all the others, but that sight alone is sufficient to give us experiences of being in a place. It is not difficult for us to understand that all that comes from the sensations of touch, taste, smell, and hearing might be dispensed with for the ordinary traveler at least, and yet little that is essential or important in his experiences of being in a country like Italy, for instance, would be left out. We do not travel through Italy for our impressions of touch, taste, smell and hearing, but above all, to *see* how these historic places look and to experience such

states of our conscious selves as result from being in the presence of these places. If a man with the sense of sight alone were in a cart-worn street of Pompeii he could have a definite experience of his presence in that historic part of the earth. It will be clear to anyone, that, if he could be carried to Jerusalem and be permitted to look at it, even though he did not touch, taste or smell anything, or hear a sound, he would gain a definite experience of being there. Sight alone is sufficient to determine our sense of location.

3. Nor color.—Further, we do not get all of sight in the stereograph, for we do not get color. "But color is, after all," as Dr. Holmes says, "a very secondary quality as compared with form. The color of a landscape varies perpetually, with the season, with the hour of the day, with the weather, and as seen by sunlight or moonlight; yet our home stirs us with its old associations seen in any and every light." Moreover, because of the bounty of nature, the riches of color are usually near the home of all.

4. The stereoscope experience is limited in time.—Another limitation we should take note of in connection with the stereoscope experience is, that the sense of location in the presence of the place or object itself (rather than in the presence of the stereograph of it), will be limited in duration, lasting with some people perhaps only ten or fifteen seconds at a time. It is not to be supposed, of course, that most people can forget their immediate bodily surroundings while looking at a scene in the stereoscope, and gain this sense of location in the place itself, for an extended length of time. But this is not necessary. The chief reason why it is so essential for us to get this sense of location in the place itself is, as we have pointed out (page 26), that we may have the emotions which the place itself would give. But feelings and

emotions, like tastes, come quickly. Give me the taste of an orange for a few seconds only and I know how an orange tastes. Give me even a few moments' sense of location in Rome, and at once I am pervaded with emotions appropriate to a place in Rome and its surroundings.

5. There is a difference in the intensity but not in the kind of emotions.— There will undoubtedly be some difference in the quantity or intensity of the emotions that a person gets in connection with the stereograph, as compared with what he would get in the place itself. But we are to see clearly that this difference is not a difference in the *kind* of feeling. The feelings and emotions that a person gets in connection with a stereograph of Rome are of the same kind as those gotten by the traveler. And then as we can come back to a place in the stereoscope again and again and ponder over it as long as we choose, it is possible for us to approximate far more nearly than we think to the full emotional experience of the traveler.

Finally, then, after taking into account all limitations, we can say that people may get in the stereoscope experiences which are comparable to those they would gain by being carried unconsciously to the places in question and being allowed to look at them.

TRAVEL EXPERIENCES WITH THE STEREOGRAPH COMPARED WITH OTHER EXPERIENCES

Undoubtedly, however, we shall understand better these experiences with the stereograph, as well as our experiences with the telephone, if we go on to inquire how we are to rank them with the other experiences of our lives.

We are capable of having various kinds of experiences, such as — speaking of the three kinds most

usually referred to—actual experiences, memory experiences, and imaginary experiences. The differences between these experiences, especially between actual experiences and those of memory and imagination, are great and vital, far greater than we ordinarily take definite account of. In Chapter VII, p. 141, we take up these experiences and the differences between them more specifically. Here, however, we shall rely upon the general knowledge the reader is likely to have of these three kinds or classes of experiences, and ask, whether the travel experiences with the stereograph would fall in any of these classes? Probably most people would feel that they must be called imaginary. Yet it ought to be fairly easy to show that there is essentially the same difference between our experiences with the stereograph, or the telephone, and imaginary experiences as there is between actual experiences and imaginary experiences.

The telephone experience not a memory or imaginary experience.—Referring to an experience with the telephone first, let us suppose there is a friend with whom we often talk. Then let us recall to mind one such experience, the room where we sat, what he said and what we said. That would be a memory experience of talking with him. Or we could picture another experience we *might* have with this friend, the room where we might sit, what he might say and what we might say. This would be an imaginary experience. Now let us turn to the telephone, call this friend up and talk with him. We might now be no nearer him than before; we might still be miles apart, and yet evidently there would be a radical difference between this experience of listening to him over the telephone and our experiences of conversing with him in memory or imagination. The business

of the world is not carried on by imaginary transactions, yet much of it is carried on by means of the telephone. Memory and imaginary experiences are drawn entirely from within, are made up of experiences we have already had, but our experience of listening to a person over the telephone is evidently a new experience based on actual sense impressions from without, on sound waves that are essentially similar to those that would come to our ear if we were in his very presence.

The stereograph experience not a memory or imaginary experience.—Referring now to the experience in the stereoscope, we can in the same way set forth the difference between the experience of seeing a place in memory or imagination and seeing it in a stereoscope. After visiting Washington, for instance, I can recall in memory the way the city looked. Or, if I have never visited Washington I can, in imagination, picture to myself how the city *might* look. Now let me take up a stereoscope and look at a stereograph of the city from the Washington Monument toward the north. I can see exactly how that part of the city is laid out. Directly before me I see the White House, with the Treasury Department Building to the right or to the east and the State Department buildings to the left or to the west. I can distinguish individual residences, where Secretary Hay and Senator Hale once lived, where other government officials now live. I can see the trees in the White House grounds. I can count the windows in the White House rooms. Certainly this is no image in my memory, no picture of my imagination, built up from within. It would be as impossible for my imagination to build up such a representation of Washington as to create the city itself. My mind is responding to actual sense impressions from without,

to light waves that are essentially the same as those that would come to my eyes from Washington itself. I am not dependent upon my memory or upon my imagination for a single detail of this infinitely accurate scene of Washington.

Such illustrations suggest how great a gulf lies between those states of consciousness or experiences built upon even the liveliest images of memory or imagination, and those experiences with the telephone and the stereoscope, which are in response to *actual* light waves entering our eyes, or *actual* sound waves entering our ears. It thus becomes evident that our experiences in connection with the telephone and with the stereoscope cannot be classed with those of memory or imagination.

The part memory and imagination play in actual experiences.—One of the reasons why many tend to call these experiences with the stereograph imaginary, is because they do not realize how large a part the memory and imagination ordinarily play in our actual experiences. For instance, as I sit here at my desk writing, I can look out of my window and see some buildings on the other side of the street. This is all I actually see, yet I realize that I am in the midst of New York City, and that I am on the eastern seaboard of the United States. As I am looking east I know that off to my left, or to the north, is Canada; behind me, to the west, stretches the broad reach of the Union; to my right, or to the south, the Atlantic and South America; and before me the Atlantic and then Europe, Africa and Asia. I actually see but a very small part of New York city, but with this as a basis or center I think out in memory and imagination and determine my relations to the whole world. So also when we look at a section of some city or country in the stereograph and then, making that our

center, think out to the world on every side, it means no unusual demand or dependence upon the imagination or on memory.

But though our experiences with the stereograph and the telephone cannot be classed with memory or imaginary experiences, still it must be admitted that it is equally evident that in talking with a friend over the telephone we do not get what we know as an *actual* experience of talking with a friend, and in looking at a stereoscopic photograph of Washington, one does not get an *actual* experience of looking at Washington. The friend is not present, the city is not present. To think the friend is present, to think we are in the presence of the city, certainly cannot be called actual experiences.

Experiences with the stereograph and telephone are illusions.—What then shall we call these experiences? Unquestionably they must be put under the head of illusions. And probably this would seem to indicate, at first, to most people, that they must be very different from actual experiences. That, however, does not necessarily follow.

Definition of illusions.—What do we mean by illusions? Speaking broadly, but in sufficiently definite terms for our purpose, we may say that the word illusion is a general term applied to various experiences where the facts of our mental states do not correspond to the facts of the world about us. Or, to put it in another way, the various experiences referred to are illusions in so far as they do not correspond to the facts of things about us.

The important thing for us is to note the difference in the kinds or classes of illusory experiences.

1. **Hallucinations.**—First, we may speak of the class known as hallucinations. This term is applied to those states of mind in which a person projects

some figment of his imagination into the external world and thinks of it as a present reality, as when a man afflicted with delirium tremens sees snakes while there are no suggestions of snakes to his senses.

2. Delusions.—Then there is the class of illusions which are known as delusions. This term is usually applied to experiences or states of mind in which some sense impression is exaggerated or distorted because of some abnormal condition of the organism. Ichabod Crane, who, with his mind absorbed with the thought of a headless horseman, took the stumps and trees, seen somewhat obscurely in the moonlight, for a headless horseman, illustrates the rise of this class of illusions from an abnormal condition of the mind.

3. Illusions due to unusual conditions in one's physical environment.—Another class of illusions is due, not to any disorder of the mind whatever, but entirely to unusual conditions in the physical environment. For an illustration of this class of illusion we have only to think of any optical illusion due to the reflection of light, as when we see our face in the mirror.

Stereograph and telephone experiences belong to third class.—It is now easy to see in what class of illusions our experiences with the stereoscope and the telephone must fall, that is, in the third class—illusions due to exceptional conditions in one's physical environment. This, however, will mean little to us, unless we recognize clearly, first, the fundamental difference between this one class and the other classes of illusions, and second, the essential likeness between this one class of "illusory" experiences and what we have called "actual" experiences.

Vital difference between these experiences and other classes of illusions.—A mere reference to the

fact is sufficient to show how vitally our stereoscope and telephone experiences differ from delusions or hallucinations. It would be manifestly foolish to think that our sight or experience of Washington in the stereoscope is due to a disordered state of mind like the snakes seen by the drunkard; or that it is a distortion of our sense impressions by an overheated imagination, like the sight of a headless horseman by Ichabod Crane.

Essential likeness of third class and actual experiences.— Now to bring out the essential likeness between this third class of illusions and actual experiences, we should recall the statement made about illusory experiences in general, that is, that they were illusions *in so far* as the facts of a person's consciousness do not correspond to the facts of the world about him — and then inquire in what respect an experience like that of looking at myself in a mirror is an illusion. It is evidently an illusion only with respect to the *position* of my face; it appears to be behind the mirror surface when it is really in front. To what extent does this lessen the value of the experience to me? None at all. I do not go to the mirror to learn of the location of my face, but to know how I look, and that I learn as surely as the man who looks at me directly. The fact that my face seems to be where it is not, in no way affects the value of the experience to me. From the standpoint of their practical value to us, therefore, such illusory experiences are to be ranked as actual experiences.

Essential likeness of telephone and stereoscope experiences and actual experiences.— It is easy to see that the same holds true with regard to our experiences with the stereoscope and the telephone. My experience with the telephone is an illusion only as regards the location of the person with relation to my

body, and my experience with the stereoscope is an illusion only as regards the location of the object or place with relation to my body. The word "illusion" as applied to these experiences does *not* mean that they are unfounded, that there is no person talking, that the object or place does not exist or has not existed. Clearly, it would be foolish to treat our experiences at the telephone as unreliable or as less valuable because the person is not where he seems to be; and more and more we must see that our experiences in the stereoscope are not less reliable nor less valuable because the place or object itself does not exist in the same relation to ourselves that it seems to exist. These illusory experiences, therefore, as far as we get them in connection with the telephone or the stereoscope, are to be *classed with actual experiences*, or experiences right in the presence of the physical reality. This has been practically recognized for years with the telephone. It is rapidly coming to be recognized with relation to the stereoscope.

Remarkable possibilities opened up to mankind through this class of experiences.—Though the feeling among people generally would be that all experiences coming under the head of illusions are either worthless or positively misleading and harmful, we are to see clearly that there is one great class of illusions that is to be sought as earnestly and prized as highly as any experiences of which we are capable. Indeed, paradoxical as it might at first appear, it is in this capacity to get such illusory experiences that we find what must eventually be considered one of the greatest blessings conferred on man. Here is a way by means of which he can be liberated to a considerable degree from his bodily limitations. Here is a way of escape from conditions that hold him

bound to place and circumstance. Certainly we have not dreamed as yet of what the experiences thus made possible in connection with the stereograph are to mean to mankind.

METHODS OF GETTING TRAVEL EXPERIENCES WITH THE STEREOGRAPH — HELPS NEEDED

This experience impossible without right methods and right helps.—It ought to be supposed, as we have stated, pages 5, 6, that people would gain from the stereoscope and stereographs “experiences comparable to those gained by being carried unconsciously to the places in question and being allowed to look at them,” only when the stereographs are used or looked at in the right way and used with certain helps.

Example of mistaken method.—To begin with, the fact that the experiences we get from stereographs are illusions, in the sense described above, and that the experience is the richer and more valuable in proportion as the illusion is more complete and prolonged, ought to be one of the first things to take account of in determining the way to use stereographs. It should be expected, that, in so far as this fact is not taken account of, the desired experiences would not be obtained. Many by not taking account of this fact make ludicrous mistakes. One man remarked, for instance, that his experience with the stereographs seemed much more real afterward than at the time he was looking at them. “As I look back in memory,” he said, “it seems as though I had stood in the place itself (Jerusalem) but I could never make myself feel so while looking at the scene in the stereoscope.” Then it was found that he had been trying to catch himself getting the experience of being in the place. That is, while look-

ing at Jerusalem through the stereoscope, he had kept stopping to ask himself, "Now do I feel as though I were in Jerusalem?" Of course, it is evident that the instant he stopped to think about himself and his feelings, he would remember that he was in his home looking at a stereograph. He was doing exactly the opposite of what he should have done; that is, he should have done all he could to *forget* himself. It was as though a person wanting to go to sleep should try to catch himself doing it, constantly thinking—"Now am I going to sleep? Now am I going to sleep?" Of course as long as he could keep his eye on himself in that way he would never go to sleep!

Attention to helps and methods recent.—This is only to suggest and illustrate the careless and mistaken way in which people have been accustomed to use stereographs. It is not too much to say that up to the last few years we have been passing through the age of developing the art of photography rather than the age of utilizing its products. Hundreds of journals and books can be found on the subject of making photographs. Thousands of the best trained minds for years have given their attention to these matters, while very little attention in comparison has been given to the way to use them. Of late years, however, very careful thought has been given to the helps required and the methods to be followed in the use of stereographs, to enable people to gain the most valuable experiences from them—experiences nearest to those of the traveler. It is certainly only fair to say that the firm of Underwood & Underwood have taken the lead in the work done in this field. We can only outline here the results accomplished.

Stereographs taken systematically.—In the first

place, however, something referred to in the Introduction should be repeated in this connection, namely, that the firm of Underwood & Underwood started out on new lines with regard to the subjects stereographed. In the past, it was only the novel and unusual features of a country that were stereographed. This firm began to stereograph countries systematically; their stereographs are so taken that people can see a country in a connected and comprehensive way. Authorities on each country decide in advance what places are to be stereographed, and aim to cover not only the more important divisions of a country, but also places connected with the great periods of its history, its great characters, as well as its typical features, manners and customs.

Coming now to the use of stereographs, and speaking first in a general way, it is found that we must treat the representations of places seen in the stereoscope as we would treat the places themselves in actual travel, and that we must do some things in connection with the representations of places seen in the stereoscope, that we would not do in connection with the places themselves.

Underwood & Underwood patent maps.—This means, first of all, definite and exact knowledge of where on the earth's surface the place we see in the stereoscope is located, and of our relation to this place with regard to the points of the compass. To give this knowledge in connection with the study of places through the stereoscope, an entirely new map system has been devised and patented in America and European countries. Taking up any one country, as Italy, there is given, first, a general map for the purpose of showing clearly the route along which the places to be visited by means of the stereoscope are located. Then sections of the country of especial in-

terest, where there are many things to see, are marked off by rectangles in red on this general map, and these sections are reproduced on a larger scale on special maps. The next step is to show exactly



"The value of this Map System can hardly be exaggerated."
 —The Watchman. "Simple, ingenious and pedagogically sound."—James H. Breasted, Ph.D., Chicago University.
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(either on the general map or on the sectional maps, or on both), each position to be taken, the direction in which a person is to be looking, and the limits of his vision, to the right and left and in front. This is done by V-shaped red lines. The person stands in each case at the point from which the two lines branch, and he looks over the territory lying between them. Further, numbers are given on the maps in connection with each one of these standpoints, which correspond with the numbers on the stereographs. Thus a person looking at a scene in the stereoscope is enabled to know precisely where on the earth's surface he is standing, in what direction and over precisely what part of a country or city he is looking, and, besides, he can know from the maps what his surroundings are. Furthermore, it is evident that he may by this means see an object, building or landscape from one desirable standpoint, then another, and yet at each new position be just as conscious and sure of his relation to all the others as a tourist on the spot could be. Clearly, such knowledge is of absolutely first importance, if we wish to gain the experiences in the stereoscope we have been talking about. We certainly could not expect to gain a definite sense or consciousness of our location in a place, and of our surroundings there, unless we know where that place is and our position in relation to it. This map system is remarkably simple and yet entirely adequate for this purpose.

Underwood & Underwood guide books for stereoscopic tours.—Again, if a person is to obtain an experience from a scene in the stereoscope as from the place itself, it follows of course that he must be able to look at it with the same knowledge of the place or what it contains, of the different buildings

and objects seen, of what they stand for, their history, etc., that the traveler would have on the ground. To meet this need, Underwood & Underwood began a number of years ago to have books prepared by people of wide travel and broad culture to accompany their stereographed scenes of a country or city.

First aim of guide books is to give information.—In regard to these books it should be said that two distinct and definite aims are always kept in mind in their preparation.

The first aim is that the authors or guides shall give, within reasonable limits, the most interesting information about each place included in the stereoscopic tour, as well as some information about the country as a whole and its history. Thus each author strives to serve as an actual guide, and answer the questions that people would be likely to ask about each place on an actual visit.

Authorities as guides for stereoscopic tours.—It should also be noted that much can be done for people in connection with these stereoscopic tours which can hardly ever be done for people in actual travel. Anyone who has traveled through a country knows how vastly more profitable every hour's experience could be made if he could have constantly with him as a guide a man of culture, thoroughly familiar with all that is visited. The vast majority of travelers have to put up with some ordinary and often unreliable person, careless and unsympathetic. On these stereoscopic tours, however, it has been possible to provide as guides such men as James H. Breasted, Ph. D., of the University of Chicago, on Egypt; Rufus B. Richardson, Ph.D., for ten years Director of the American School at Athens, on Greece; James C. Egbert, Ph.D., of Columbia Univer-

sity, and Rev. D. J. Ellison, D.D., on Italy; Rev. Jesse L. Hurlbut, D.D., on Palestine; Charles Johnston on Ireland; Julius E. Olson, Ph.D., of the University of Wisconsin, and M. S. Emery, on Norway; James Ricalton, the veteran traveler, on India and China.

Second aim of guide books to aid people to gain the travel experiences.—The second, though really primary, aim, in the preparation of these books is to aid people in gaining genuine *experiences of being in the places* represented. Realizing the great importance of this result, the authors work with the utmost care to accomplish it. They try to put what they have to say in the form of such exercises that a person going through them might easily and yet surely gain the experiences desired.

Aid in the use of maps.—In the first place, they aim to lead a person to make the most careful use of the special maps and thus get a clear idea of the points of the compass in connection with each scene. Here is a respect in which it is important for a person to do something in connection with the stereographed scene that he might not do in connection with the place itself. A traveler might neglect to keep his bearings and yet obtain a very satisfactory experience of the place, though of course all would recognize that their experiences would be still more satisfactory if they had kept their relations to the compass points clear. In the stereoscope, however, getting one's bearings is one of the most effective means of losing one's consciousness of being before a stereograph in one's home, and of gaining an experience of *being in the place itself*. We get our relations to the points of the compass in connection with a place in the stereoscope not merely as an end in itself, but as a means to an end.

Directing attention to details.—Another means of

obtaining these experiences is noticing the details of a scene. Scarcely anything is more effective in fixing people's attention, in making them entirely oblivious to their bodily surroundings, and giving them a vivid sense or consciousness of being in the very place itself. Often, therefore, it is considered wise in these books to turn aside to notice spears of grass, the texture of a stone, tiles, chimneys, a ragged coat or hat, not because of any particular importance these details might have in themselves, but for their effect in fixing the attention and inducing the desired experiences of presence in the place itself.

Use the language of travel.—A very important means of aiding other people or ourselves to gain these stereoscopic travel experiences, recognized in these books, is the language used. When we turn to most of the literature of the past dealing with people's experiences with stereographs, we find it very confusing; now the writer talks of seeing the objects and places themselves, now of seeing "stereographs" or "pictures." The confusion and seeming contradiction here are cleared up, when we remember that there are, as we have previously pointed out, two widely different standpoints from which the stereograph can be considered — the standpoints of objective and subjective reality. From the standpoint of objective or material reality, the stereographs are only pieces of cardboard with photographic prints pasted upon them—"pictures." Thus as material objects, as articles of commerce of a certain size and weight, we apply the term "stereograph" or "stereoscopic photograph" or "picture" with equal appropriateness to each one of many thousands. But now turning to the subjective standpoint, or the standpoint of people's experience in the presence of each one of these stereographs, we can see that the facts of their

experiences are or may be as distinctly separate and different as are the widely different parts of the earth that are thus shown. We do not really have an experience of a "stereograph" or "stereographs," but of Rome, or London, or Jerusalem. Whatever ideas or emotions we gain in connection with the stereographs are such ideas and emotions as *those places and they only* could give. Consequently there should be no confusion in our thought or language here. We should see and keep clearly in mind the two entirely different kinds of realities we have to do with, and should use language that is descriptive of the particular kind we may be referring to. After using the telephone we do not say that we have been listening to the telephone. We have been listening rather to this or that particular human being over the telephone. This is the only sort of language that is really descriptive of the facts of our experience. There is no more reason why we should say that we have been looking at or studying "stereographs" or "pictures." The only language that would be really descriptive of the facts of our experiences in connection with the stereoscope and the stereograph, would be the language of the place, or the language of travel — that we had been looking at or learning about *this or that particular place*, Florence, Bethlehem, etc., in the stereoscope. Not only is this language justified, but it is the only language that is justified by the facts of our experience.

Now, in the second place, remembering a statement so obviously true about these stereoscopic travel experiences — that is, that we shall get the emotions of the place itself in connection with the stereograph to just the degree that we are able to forget that we are looking at a stereograph and feel that we are in the presence of the place itself and its surroundings

— then we see how vitally important it is that in aiding people to use stereographs we should use the language of travel, of the places themselves, rather than the language of “pictures.” Whenever we talk or write from the objective standpoint and use the language of pictures, we remind the person of the picture — the very thing he ought to forget. If we use the language of the *place*, we continually suggest to him and help him to gain an experience of the place — an experience that otherwise he could gain only by going to the place itself.

For these reasons, therefore, the authors of the books to accompany stereographs strive to use consistently language in accordance with what should be and may be the facts of one’s experiences, the language of travel. That is, according to this plan, an author assumes, in the case of each stereographed scene, that he is standing with his fellow traveler in the actual place; and in calling attention to points of interest or calling up history, he uses the first person, as he would in conversation. All the language of “pictures,” as “the next picture,” “foreground,” “background,” “outside the picture” are rigorously excluded, and instead such phrases are used as “at our feet,” “in the distance,” “outside the range of our vision to the right (or left),” “our next position,” etc. Very often the language used will determine one’s success or failure in leading a person to gain these travel experiences from stereographs.

FURTHER COMMENTS ON GETTING TRAVEL EXPERIENCES WITH THE STEREOGRAPH

Part that moods play.— There are other facts that should be mentioned, bearing on our use of the stereoscope and stereograph. For instance, in getting these experiences it should be expected that a person’s

moods will play some part. One day will be more favorable than another. When a person's vitality is low, when he is suffering pain of some kind, it is evident that he would not be able so easily, or perhaps at all, to forget himself, his body in his armchair, and gain a sense of being in the presence of the place seen.

Differences in people.—Then, some people, because of their training or lack of it, gain these experiences more easily than others. The common man and the child find it easiest. The child, looking at a familiar object in the stereoscope will exclaim, "Mama, see that cat!" and reach out his hand to grasp it. The common man gazing on the ancient town of Bethany is lost in a moment, and impulsively asks, "And this is the town where Martha and Mary and Lazarus lived, is it? And here is where Jesus came so often," etc. It can be Bethany at once to him. The reason is that the child and common man respond more unquestioningly to their sense impressions. What they see can dominate their whole mind at once. On the other hand, the mind of the educated man is not so easily dominated in this way. His mind is more alert, able to move quickly from one subject to another. He is more likely to remember, when his eyes are in the hood of the stereoscope, that the only material reality before him is a photograph. Often, therefore, more effort is required on his part to get a sense of location in the presence of the place represented. Because of the fact of his training, however, the educated man is able to control his attention sufficiently if he really tries to do so.

Better results by continuance of effort.—The most satisfactory experiences are often obtained after some continuance of effort. In the introduction of his book on "Egypt Through the Stereoscope," Pro-

fessor James H. Breasted says, "In the preparation of the following pages, I have constantly had my eyes within the hood of the stereoscope, and I cannot forbear to express here the growing surprise and delight, with which I observed as the book proceeded, that it became more and more easy to speak of the prospect revealed in the instrument as one actually spread out before me. The surprising depth and atmosphere with which the scientifically constructed instrument interpreted what were actually but bits of paper and pasteboard, were a revelation; indeed, I constantly sat by an open window looking out over the actual ruins of the Nile Valley, which I could study, one after another, at will. To the believing beholder there are precious moments, when the mind is perfectly convinced of the reality of the scene before him, and such moments, persistently sought and repeated, come more and more easily as one accustoms himself to the instrument, until afterward the mind looks back upon it all, with essentially all the sensations of having seen the reality; and an actual visit to the place can do little more."

Bodily movements.—We should refer also to the fact that psychologists advise certain bodily movements (for some people at least) in the use of stereographs. After finding from the maps or books what their position is to be and the direction in which they are to look in the stereoscope, it has been found wise for many to assume the same position they would on the spot. They should actually turn their bodies so that they face the direction indicated. Moreover, after locating on the map surrounding objects as being so far in front, or to the right or left, or behind a certain standpoint, they should, as they look at the scene through the stereoscope, not only *think* of the position of these objects, but make *hand motions*

or *head motions*, to emphasize their feelings of the position of each.

This is in accordance with the theory now generally held, that the real substance of our emotions comes from their bodily expression; that as long as the pleasure or pain exists mainly in consciousness it is largely colorless. Thus a man finds, we hear him say, that he can control his temper, if he does not allow his voice to rise. When, however, he allows his anger to pass out into bodily expression, when his voice rises, his teeth are set, his fists clinched, then he finds his anger uncontrollable.

Now, vice versa, it follows that if we want to experience a certain state of feeling, we can do much to bring it about by assuming in advance the appropriate bodily attitude. It is in accordance with this principle that boys, from time immemorial, have whistled instinctively when in places where they are likely to be afraid. Nothing could be more effective in keeping up their spirits than assuming this bodily attitude of "don't care."

It is thus easy to see how bodily activity in connection with the stereoscope, as spoken of above, would be much preferable to the attitude of bodily indolence which we commonly lapse into, when looking at stereographs or pictures in general.

TRAVEL EXPERIENCES WITH THE STEREOGRAPH MAY
NOT BE RECOGNIZED WHEN OBTAINED — MEMORY AC-
TION AS PROOF

An illustration.— It will be wise for us, however, to take note of the fact, that, even though we do fulfill the conditions sufficiently to gain an experience of the place itself while looking at the stereograph with the helps described, still we may not realize that we have obtained this experience at the time. Here is a

case that illustrates what we mean. We were talking with a man who had just returned from Venice. Before going he had prepared himself very carefully, he said, for his visit. Among other things he made a study of some stereographs of the more important parts of Venice. He was not content to look them over merely, but by the help of maps he found the points in Venice from which he was able to look in the several stereographs, and the particular sections of the city before him, and then he gave himself up to a thoughtful and sympathetic contemplation of what he saw. Finally, he reached Venice. He left the train eagerly and expectantly. But, he said, he was soon surprised and delighted at the way in which he seemed to feel at home in the city. It seemed as though he was returning to places he had visited before. Then, as he thought it over, his mind went back to the time when he saw the stereographs. He recognized that he had gained from them not only wonderfully accurate ideas of the appearance of many places in Venice, but also distinct experiences of location in Venice, experiences which had brought with them part of the very same feelings that came to him on the ground in Venice. He experienced more emotion in the place itself, but he recognized it was more of the same kind that had come to him while shut in with Venice in the stereoscope at home.

Thousands have made this same mistake. Even though they have so used stereographs as to gain from them true experiences of the places themselves, still they have gone on thinking of an actual visit with the idea that it would mean something entirely different from anything they had yet known. We are to see, however, that, as in the case of this man who visited Venice, the fact that a person may not be conscious of having had such an experience is no

proof whatever that he has not had it. Indeed, it is not at all unusual for us to make equally great mistakes about the nature of many of our experiences. Says one psychologist, "Facts of consciousness may be just now observed, though they have been experienced millions of times."

Behavior of memory adequate proof.—How then are we to know of what nature our experiences with the stereoscope really have been? The more we think about it, the more we must consider that the behavior of our memory will be the most reliable evidence we could have, and indeed sufficient proof, as to what our experiences have been. As we have already stated briefly on page 90 we could not expect to be conscious of such an experience as we have spoken of in connection with the stereoscope, *at the time when we are having the experience*. Indeed, if we are to have such an experience at all (as we said then), it must come when we forget ourselves and what we are doing, when we forget our immediate surroundings and become dominated by our field of vision in the stereoscope. Just as soon as we stop to think what sort of experience we are having, we bring back the consciousness of our bodily location and surroundings. We could not expect to keep an eye on ourselves and at the same time forget our bodily environment. The only time we could know of having such an experience, then, must be after we had passed through it, and that means *memory*.

What the behavior of memory is.—What then is found to be the action of a person's memory after he has used stereographs as outlined above? It is found that his thought goes back over mountains and seas to the distant land where the real place is located, rather than to the room in America or England where he saw the stereoscopic scene. Our memory

acts precisely the same toward these experiences as it does toward our experiences of places where we have actually been. The place where we were while looking at the stereograph is either entirely or almost entirely ignored. Our thought goes back directly to the distant part of the earth where the actual scene is located. Such action of our memory must be considered a proof that we have had an experience, not of a stereoscopic representation in our home, but of the place itself. Our memory could not act in this way unless sometime while we were looking we lost all consciousness of being in our home in the presence of a stereograph merely, and gained an experience of being *in the place itself*.

THESE TRAVEL EXPERIENCES POSSIBLE WITH NO PICTURE BUT THE STEREOGRAPH

Further, in the action of our memory we find proof also that this experience of presence in the place itself cannot be gotten in connection with any other kind of picture, the setting of which, in our hand, in a gallery or on a screen, can be seen. We have referred to this subject in a general way on page 27, stating there that, in connection with such pictures which we look upon while our immediate surroundings are not shut out, the mind never loses consciousness of our location in the place where the picture is.

Illustrations.—Here are illustrations that may serve to bring out this fact more clearly. In the Metropolitan Museum of Art in New York there is a beautiful painting of a place in France. It is a haying scene, and the field, with its mounds of hay, stretches away to the distant hill with a fine effect of space and reality. We have lingered before this scene many times until it stands out with great vividness in our memory. We think we know where the

real place is located in France. Nevertheless, whenever we recall this scene, our memory goes back directly and definitely, not to France, but to the Metropolitan Museum of Art in New York, and afterwards, if at all, to France. Though it might have *seemed* sometimes that while gazing at the splendid picture we became entirely oblivious to our immediate surroundings, and that we were in the very presence of the real scene in France, still the memory-record of our experience shows that we really did have a definite sense of location in New York all the while. Some time ago we attended a stereopticon lecture on Constantinople at Mendelssohn Hall in New York. The representations of Constantinople thrown on the screen were especially realistic and natural. Maps also were given. But whenever we call up our experiences of that night our thought goes unerringly to Mendelssohn Hall. Whenever we recall the sights we had of the narrow, crooked streets and the mosques of the ancient city, we remember also the partly-lighted lecture room, the dimly outlined heads of an American audience, the advancing and receding figure of the lecturer on the stage. There were times when we might have carelessly said that we felt as though we were looking out on the material city itself, that we were in its very presence, but memory finds no experiences to go back to outside of Mendelssohn Hall. We never lost a definite sense of our location in New York.

Why "travel" experiences not possible with other pictures.—It is not difficult, though, to see why we should not expect to gain an experience of presence in the place itself while looking at a picture which gives only the appearance of space, not perfect space to the mind, and the setting of which *in our hand, in a gallery, or on the screen*, can be plainly

seen. Under such conditions the mind is receiving through the eyes impressions of two places at once, the place where the body and the picture are, and the place, entirely separate from this, which the picture represents. Now our sight has most to do in determining our sense of location. But of course it is impossible for us to feel that we are in two places at once. In a case of this kind it would be only reasonable to suppose that we should not lose our consciousness of location in the place where the picture is, or at least, that we could not gain a distinct consciousness of location in the place represented in the picture. *For the very reason that sight impressions are so effective* in giving us our sense of location, it is of the first importance, if we would gain a distinct sense of location in the place seen in a picture, that no sight impressions of any other place should reach the eyes. Sight impressions that reach us of the place we are in, while looking at the picture of another place, cannot be ignored. And when we add to these sight impressions the other sensations and suggestions of the place where our body and the picture are, it becomes impossible for us to acquire a distinct sense of location in the place which we see in the picture. It becomes clearly evident, therefore, that the peculiar conditions under which the stereographed scene is looked at, that is, with all one's immediate surroundings shut out by the hood of the stereoscope—the climax of framing—are of vital importance in enabling us to get the travel experiences referred to.

With stereographs radically different conditions make travel experiences possible.—"But," some one may say, "if you make so much of what we see of the setting of the ordinary picture, you must remember that ordinarily, in the stereoscope, we see something in addition to the stereographed scene; we see parts

of the stereoscope and the borders of the stereograph — as much possibly in proportion as we usually see in addition to the pictured place on the screen in the darkened lecture room." Such reasoning, however, overlooks a great difference in the two cases. What we see in addition to the pictured scene in the stereopticon lecture room is fixed in its position, it belongs to a definite place on the earth, whose location is made clear to us by our efforts in going to it, etc. Hence so much of the lecture room as we see in addition to the pictured scene suggests definitely one certain place. On the other hand, the stereoscope and the stereograph-mount or card, of which we see portions in connection with the stereographed scene, are not fixed in location but movable; they are sent all over the world, and hence have little or no force in suggesting any particular place to the mind.

Summary of chapter.— In approaching the end of our consideration of what we have called experiences of travel with the stereograph, used with maps and books, it may be well for us to glance over the ground we have covered. At first, in answer to the natural assumption that it is impossible to get an experience of being in a place, apart from the place itself, it was pointed out that wherever we are, we are concerned with two kind of realities — the outer, material, or objective reality, and the inner, or subjective reality; and that it is our *experience* of things, the subjective reality, that we seek in traveling. The places themselves, or the objective realities, serve only as means of inducing these experiences. Evidently, then, if some substitute for the place could give the experience of it (which is the claim for the stereograph), then of course the place itself is in no way essential. To understand how this was possible, we considered the method by which we gain our ex-

periences of things about us. We found that these experiences are based on impressions of things received through our different senses. We found, that, while it is only by *actual contact* with things that we get impressions of them through three of our senses, yet in the case of hearing and sight we get our impressions by means of a third medium — air or ether waves. Accordingly, it was found in the case of the telephone, that, though there is an infinite difference between the living lips and vocal chords of the distant person talking to us and the piece of metal near our ear, yet the air waves that the metal piece sends to our ear are essentially like those coming from the man's lips. Consequently, in listening at the telephone, our experience is, not that we are listening to a machine merely, but to a person. Similarly, it was found, that, while there is an infinite difference between a place itself and the stereograph of it, yet there need be no essential difference between the light waves that the place and those that the stereograph can send to our eyes. Consequently, in looking at a stereograph, it was seen that our experiences could be, not that we were in the presence of a picture merely, but in the place itself. Next we took up the limitations of the experience with the stereograph, and then we passed to a consideration of the experience as an illusion. We found that it belongs to one class of illusions that is radically different from all other classes, and essentially like actual experiences. This brought us to the methods of getting these experiences, the helps needed, maps and guide books, the importance of noticing details, and the language used. We went on then to speak of the part moods play, the differences in people, the tendency on the part of all to be unaware of such experiences after having them; the proof given by the action of memory. Lastly, we consid-

ered the impossibility of getting such experiences from any other kinds of pictures.

SOME REASONS WHY IT IS DIFFICULT TO BELIEVE
TRAVEL EXPERIENCES WITH THE STEREOGRAPH ARE
POSSIBLE

1. **Assumption that the body localizes the spirit in space.**—It may be wise for us to consider more specifically some of the reasons why it is naturally very difficult for us to realize that we can get, in connection with such a stereograph travel system, experiences that are, with the limitations named, like those we could get in the places themselves. Some time ago the writer saw a book on mental development, written in popular language. It was called "Man Building." The author began by stating that there were two sides to man, a material and a non-material side, the body and the soul or spirit. Then he took up the uses of the body. What was the first one mentioned? Why, "The body localizes the spirit in space." That is, the soul or spirit is always where the body is. Unquestionably this is taken for granted generally. During this life "our bodies hold us bound to place and circumstance." "Here" to us always means where our body is and all other points in the universe are "there" to us. "Now" to us is this particular circumstance through which our body is passing, all other points of time, past and future, are "then." We are bound to this place and this hour. We cannot break away to exist in any other hour or place. This may be said to be the universal assumption. Clearly then the experience with the stereograph as outlined above is contrary to one of the most fundamental and everyday assumptions of our lives. We are to see, therefore, that even though such an experience is entirely possible, we and people

generally would naturally be unduly slow in accepting the fact. No little effort is required to accept the truth.

Accordingly, let us turn in thought for a few minutes to a place in the stereoscope and see if we can bring out, perhaps in a more definite and accurate way than we have done so far, how we can do this seemingly impossible thing, how we can escape from the place and circumstance of our body.

Getting an experience of being in Jerusalem with the stereograph.—First, let us suppose we turn to a map and note the position of Palestine at the east end of the Mediterranean Sea and Jerusalem in the southern portion of Palestine. Let us note also the relation of other countries to Palestine — Asia to the east, Egypt and the rest of Africa to the southwest, and off to the west the Mediterranean, France, Spain, England, the Atlantic and then America. Now let us suppose that there is placed before your eyes in the stereoscope a stereograph of Jerusalem from Mt. Scopus, or from the *northeast*, giving a view, that is, over the city toward the southwest. With your eyes within the hood of the stereoscope you are, accordingly, now looking toward the *southwest*. At your feet, almost within reach of your hands, is a tumbled heap of stone. A few rods away is a man in oriental dress astride a donkey moving along a path. In the distance, looking down over a gentle slope, you see, about a mile away, the whole city of Jerusalem. The northeast corner of the city wall is nearest you, with the full length of the eastern wall, bathed in sunshine, stretching off to your left, and the northern wall, more dimly seen, extending off to the right. Beyond you see the hills which are “round about Jerusalem” on the south and west. Over these hills to the southwest you can see the road leading to Bethlehem six miles away in

that direction, and on to Hebron twenty miles away. As you are looking toward the southwest, you know too, as you think about it, that beyond those hills about two hundred miles away lies Egypt, and that off to your right, or more to the west, lie the Mediterranean sea, Italy, France, England and the Atlantic. "Point now," I say, "toward America." At once, you stretch out your hand to the west or to your right. Where is *here* to you now? Why, beside the tumbled stones, near the donkey and rider on the sloping hillside. And where is America, where your body is? Why, it is *there* to you, far away to your right. You think out to America where your body is, from your standpoint by Jerusalem, as definitely as to all the other countries of the world.

With your head still in the hood of the stereoscope, your attention is called to the sunshine on the east wall of Jerusalem, and you are asked what time of day it is. Reasoning that sunshine can fall on the east side of a wall only before noon, and observing the length of shadows near by, you reply, "It must be in the forenoon, probably about ten o'clock." As you thus continue to look over Jerusalem what is *now* to you? Why, ten o'clock in the forenoon. No matter if it is midnight at that instant in America where your body is, your experience is that you are looking out upon the world bathed in the morning sun.

Perhaps this brief outline of the way to use a stereograph will help toward a more adequate realization of the fact, that, under such conditions, we *can* break away from the place where our body is and from the hour in which we are living, and gain an experience of location in another place far from our bodies, and an experience of another hour.

Careful thinkers fix seat of time and place for us in our consciousness.— We cannot hope, however, to

realize the possibility of this fact, unless we think carefully. "Do you mean to say," said one man, "that I can be in Palestine in a few seconds? Nonsense." To him, thinking of himself in terms of his body mainly, it must appear nonsensical. It is a law of mechanics that a physical body can move from one place to another only by passing through all the intermediate points. But this law does not hold for the mind, or true self. As far as our conscious self, our non-material or *real* self, is concerned, being in America or being in Palestine means only a change of state. If by some rapid transit it were possible to rush my body to Palestine in a few seconds, my mind would have no trouble in adjusting itself at once. *Change of place or of time for my mind means only a change of its state.* So we find deeper thinkers fix the seat of time and place for us, not by the clock in our room or by the place that happens to be about us, but in our minds or consciousness. "And what do we mean by the *now*, and how do we fix its seat? It is the subject's own existing *state*, the point through which his act is passing. And what do we mean by the *here*? It is *where the subject himself is, it is his own center*, the working point of his activity." Or again,¹ "the *here* is determined by the subject's immediate activity. Instead of saying we act where we are, we must literally reverse the proposition and say we are where we immediately act. No other definition of presence or location can be given. In that case our presence, or our *here*, becomes relative to the range of our immediate action. If we could act as immediately and effectively on things beyond the sea as we do upon things at arm's length, we should be as present beyond the sea as we are in our immediate neighborhood."

¹ Borden P. Bowne, "Personalism," page 741.

Certainly it is *not* true that the body always localizes the spirit in space.

2. **Habit of considering material things more real than non-material self.**—Another reason why it is difficult to take account of these travel experiences with the stereograph as actualities is the fact that we all tend to be, we may say, slaves to the material world, As Bowne puts it, "Things that can be seen and handled are pre-eminently real, and the tendency is to think that only such things are real." We habitually think of our material bodies as more truly realities than our non-material selves or souls. We are ever taking account of material objects generally as more truly realities than our thoughts or experiences of these objects. Speaking on this subject, John Fiske says, "What we call the soul, the mind, the conscious self, is something strange and wonderful. In our ordinary efforts to conceive it, invisible and impalpable as it is, we are apt so strenuously to divorce it from the notion of substance that it seems ethereal, unreal, ghostlike. *Yet of all realities the soul is the most solid, sound and undeniable. Thoughts and feelings are the fundamental facts from which there is no escaping.*" Again he speaks of "*that intensest of realities, the human soul.*"

Life made up of successive states of consciousness.—Indeed we cannot see too clearly that the question as to the facts of our life at any time is not a question as to the facts of our body, and its material surroundings, but as to the facts of our soul or consciousness. Or, to put it in another way, we all know, as we stop to think about it, that *any person's life is made up of the successive states of consciousness through which he passes.* Now it is true, of course, that ordinarily these states of his consciousness will be in accordance with his material surroundings. But

also we know, as we have found, that they need not be so and often are not so. Consequently, we ought to realize, that, when the states or facts of our consciousness are *not* in accordance with the material facts about us, it is the facts of our consciousness that make up our life at that moment or period.

Tendency to miss facts of experiences with stereographs.—Because of the persistent tendency to think so much of the reality of the material and to underestimate the reality of our non-material selves, we ever tend to overlook the facts of our experience with stereographs. Indeed there is nothing in regard to which this tendency will be so likely to lead us astray as it will in regard to any kind of illustrations, but especially stereographs. Here material reality is reduced to insignificance. In the place of mountains, cities, buildings and people, we have only pieces of cardboard and paper. From the standpoint of material reality, stereographs are but shadows. Asked where her husband had been for an hour, the wife answered that he had been in the library looking at stereographs of Palestine. It did not occur to her for a moment but that in giving an account of the position and physical surroundings of her husband's body she was giving an account of his life for the time. And when it was suggested that *he* might have been several thousand miles away part of that time, that *he* might have been for some seconds at least on the shore of the sea of Galilee and on the Mount of Olives looking down on Bethany, she smiled. *His body had been in the library all the time*; any states of his consciousness he had passed through of being in and looking over places in Palestine did not count against that fact. And yet, if he had been using those stereographs with the help of map and guide book as he might, and the biography of his real life during that time were to be

written, it would have to take account of the fact that for appreciable lengths of time now and then *he was in Palestine*. And this would be true, we are to remember, not in any mere imaginary or memory sense, but rather, as we have pointed out, in the sense of real experiences. Difficult as it may be at first for a person, because of the more customary assumptions about our lives, to realize the possibilities of the experiences with stereographs as outlined above, still the more fully one investigates and reflects on the subject, the more definite one's convictions become.

Statements about the travel system.—The following statements indicate the conclusions reached by men who after thoroughly investigating the subject have prepared some of the guide books, referred to above, to accompany stereoscopic tours. These statements are taken from the introductions to these books.

Rev. Jesse L. Hurlbut, D.D., in his "Palestine Through the Stereoscope."—"Have you dreamed of visiting Palestine? Have you longed to know what it would mean to stand by the wall of Jerusalem? In Nazareth? By the Jordan? You may now know, by the *right use* of the stereographs, especially devised maps and this book what it is to stand in those very places."

James H. Breasted, Ph. D., in his "Egypt Through the Stereoscope."—"It was with peculiar satisfaction that I made the acquaintance of this system of stay-at-home travel, the great merits of which are but beginning to be appreciated. By its use an acquaintance can be gained, here at home, with the wonders of the Nile Valley, which is quite comparable with that obtained by traveling there. By this means the joys of travel can be extended to that large class of people, who thirst for an acquaintance with the distant lands of other ages, but are prevented by the expense involved, or by the responsibilities of home, business or profession."

Rufus B. Richardson, Ph. D., in his "Greece Through the Stereoscope."—"I shall not pretend to speak of the possibilities that are here opened up in the fields of education and general culture. Direct access to Greece can be given in

this way from every classroom, student's room, and from homes generally. We have been long accustomed to hear of undreamed-of triumphs in the realm of physical science as applied to our material conditions. Here we have the results of this wondrous age of inventive genius applied in the liberation of our minds from bodily limitations, and it is not easy either to accept the facts about it or to appreciate its consequences."

Clearly, then, if it is possible for human beings to get in connection with this stereograph travel system experiences (with the limitations stated), that are comparable to what a person would get in the places themselves, this means a liberation for men of the most far-reaching consequences. Millions of people are chained down to one spot of earth by the hard necessities of their lives! Millions of people look out to the material hills which bound their horizon and long for the experience of standing in the great places of the world of which they have heard. But to these millions it has always seemed that such longings could never be satisfied, such dreams never fulfilled, because there was no way of knowing these experiences excepting at the great expense of actual travel in body. Yet this is not necessary. These people may know for themselves the experience of standing in those places. No matter if their bodies do remain in the old accustomed scenes, their states of consciousness may be dominated by what is far beyond their narrow horizon. They not only may learn absolutely final facts as to the way a distant place looks, but they may experience part, at least, of the very same emotions the place can stir. They may receive into their lives the peculiar messages which a certain place in Italy, or Greece, or Switzerland can give. They may have experiences of location all around the earth's surface.

In the following chapters we want to consider the need for, and the possibilities of, this stereograph

travel system. It might seem at first that the benefits made possible by such a system would be largely self-evident ; but, as Oliver Wendell Holmes said in regard to the stereograph years ago, " it is not so easily, completely, and universally recognized in all the immensity of its applications and suggestions." To begin with we should reach fairly definite conclusions as to the importance of environment.

CHAPTER VI

THE IMPORTANCE OF ENVIRONMENT

The stereograph travel system a means of widening environment.—The most general statement of the use of the stereograph travel system we have been describing is, that it is a means of widening and enriching people's environment. As Professor Breasted said, "These experiences (to be gained from this system) can enormously widen the horizon of daily life."

Its importance therefore in proportion to the importance of environment.—If we would arrive at anything like an adequate estimate of its usefulness, therefore, we must begin with an inquiry as to the importance of environment. If we are uncertain or have erroneous ideas about the importance of environment for people, we must as a matter of course be unable to arrive at any definite or accurate estimate of the importance of this stereograph system or of any other means of widening and enriching people's environment. Much as the subject of environment has been discussed, it is essential that we gather here briefly some of the conclusions at which men have arrived.

Vast importance of environment for the millions.—All recognize that every life is the resultant of two sets of factors, first the internal, the inherited life principle with its inherent faculties and tendencies, and second the external, the surroundings or environment. Now while it is true that both the internal and the external sets of factors are absolutely essential for the development of any life, yet only a little thinking in a broad way is required to show us that the develop-

ment of the lives of the millions is dependent far more upon their surroundings, the age or land in which they happen to be born, than upon what they inherit. While the internal life principle may be called the primary factor, in the sense that without it no development is possible, still we know that left to itself, this life principle would no more develop than a seed that is deprived of moisture. "If an American child be reared from earliest infancy by savages, he grows up savage, not civilized; if he should grow up among wild beasts he would fall short of the knowledge, the morals, and the religion even of savages. The importance of the external factor in education, then, is measured by *nothing less than the distance between what children in a Christian environment actually become, and what they would become if they grew up in isolation from humanity*. Not indeed that education bestows all this, but rather furnishes essential conditions for the growth of the native impulse."¹

Of what tremendous importance then to every person are the external conditions, the external forces, with which he comes in contact!

Exaggerated statements about powers within.— Yet it is customary in these days to hear the most unqualified statements about the power men possess *within themselves* to shape and make their lives. With reference at least to intellectual and moral development, there seems to be a popular impression that in some way it ought to be possible for people to grow up and live independently of what is external to them, whether good or bad. Whatever its cause there is a widespread tendency for men to overestimate the powers within and underestimate what is external to themselves. Consequently the vast majority of people are careless about the use they make of the environment

¹ George Albert Coe, "Education in Religion and Morals," page 210,

they have, as well as about widening that environment. Most people live on to some degree as though they had within some separate, independent force or power, more or less unlimited in amount, a force by means of which they ought to be able to overcome their evil propensities, arouse their best impulses and act upon them by inner effort and struggle alone. They do not usually feel that they should go on with care and effort to study and get in touch with, and keep in touch with, the very best forces *external* to themselves. Because of such impressions as to the sufficiency of the powers within, we often see parents, when it comes to anything beyond the most primary obligations of fatherhood and motherhood, taking a great load of responsibility off from their own shoulders and placing it upon the shoulders of their children, saying, in effect, you can grow and develop into men and women of the highest character, no matter what we may do or fail to do in determining the circumstances that may be around you. They are but acting in accordance with the unqualified statements often heard, that men can and should be independent of circumstances or environment.

Explanation of such statements.—In the light of the enormous part environment plays in the development of life, as we have seen above, and the utter impossibility of the inner factors developing by themselves, how can these statements about the powers men possess within be explained?

In the first place, we are to understand that such statements are usually made in regard to persons of adult years, and then of course the original endowment by heredity has been greatly supplemented by environment; the resources within include not only the inherent capacities and tendencies received at birth, but the constant stimulations and contributions of en-

vironment for a long period. Further, we are to note that when such statements are made in regard to children, and even in regard to adults, there is usually an unexpressed assumption that a sufficiently good environment is within their reach. Later we shall consider to what an astonishing extent such an assumption is untrue. But another factor that serves as a basis for these statements is the freedom of our wills. It is undoubtedly true that it is misunderstanding as to the nature and extent of our free effort that explains mainly the exaggerated impressions and statements about the inner factors of our lives. Consequently this subject should receive special attention.

Free will means power to hold an idea a little longer before the mind.—What, then, is this power we possess in the freedom of our wills? How great is it? In what manner do we use it and where do we apply it? In the words of Professor James, “The operation of free effort can only be to hold some one ideal object (idea of an object) or part of an object, a little longer or a little more intensely before the mind. Amongst the alternatives (of thought and action) which present themselves as *genuine possibles* it would thus make one effective. . . . If it can emphasize, reinforce, or protract for half a second either one of these (ideas), it can do all that the most eager advocate of free will need demand; for it then decides the direction of the next associations (of ideas) by making these hinge on the emphasized term; and *determining in this wise the course of the man’s thinking it also determines his acts.*”¹

Thought precedes each act and tends to the act.—This means that if we would understand how we are able to direct and determine our lives through the

¹ See William James, “Psychology,” Chapter XXVI.

freedom of our wills, we must begin by taking account of two facts, first (as James points out in another connection), that all voluntary action *must be preceded by a thought or idea of the action*. "Automatic and reflex actions are (on the first occasion of their performance, at any rate) unforeseen by the agent." But to be voluntary an action must, of course, be desired and intended beforehand; that is, we must have some *idea* of the action or its consequence, in advance. The second fact is that bodily movement, or action, is the natural, immediate effect of the process of thought and feeling. The *thought* of an action tends to the action itself, and, if it is sufficiently intense, always leads to the action, unless thoughts of other and contrary action come into the mind. Let the idea of a certain action become dominant in consciousness, "let no other ideas succeed in displacing it, and whatever motor effects (action) belong to it by nature will inevitably occur." Thus we are able to see how it can be that determining the course of a man's *thinking* means the determining of his acts.

We control acts indirectly only—through thoughts.—Now coming back to James' statement that the freedom of our wills means a certain power we can exert *on our thoughts*, we should not fail to take account of how much of a limitation this means as to our free effort. No person, therefore, is able to control his acts *directly*. The only way he can control his acts is by controlling his thoughts and feelings that lead to his acts. Our will, thus, we must see, means a relation between our mind and its ideas. The essential effort of our will is effort of attention to an idea, "to keep affirming and adopting a thought, which, if left to itself, would slip away." "The es-

sential achievement of the will, in short, when it is most voluntary, is to attend to a difficult object and hold it fast before the mind."

Importance of thought in life.—It is true then in a certain sense that the battlefield for the control and direction of our lives is within. And certainly little comment ought to be needed to show the vital importance to every human being of the mental life he has, the thoughts with which he deals. Thoughts are so unobtrusive and usually pass so immediately into action that it is difficult for most people to realize the vital and absolutely necessary part they play in all our life. We have only to think, however, of all thought being swept out of men's minds, to realize how immediately all work of men would cease. We cannot have a great life without great thoughts, and back of every insignificant or evil life there are insignificant or evil thoughts. The question of the life we live then is in a true sense the question of the thinking we do, the ideas we possess, and the degree in which we can hold desirable thoughts in our minds. Especially are we to see that the question is not of having now and then desirable thoughts, but of the frequency and persistency with which they are held before the mind.

Dependence on environment for thoughts.—But now we must consider particularly the limitations of the power we possess in the freedom of our wills, *even with relation to our ideas* — which brings us back to environment again.

First, the freedom of our wills does not mean power to "create our ideas or summon them *ex abrupto*." Our power is limited "to selecting among the ideas the associated machinery introduces." "An idea is, as it were, an organic growth, of which the materials are supplied from *the external world*, and the structure from the world within. The mind stands

in pre-established relations to the things around it. . . . Out of these relations it is not itself, nor *do its powers possess the material whereon to work*. We cannot conceive a mind having no points of contact with the external world. From that world *must come all the exciting causes of thought and action.*"¹ As President Hyde has said, it would be as foolish to expect that a cotton mill could produce cotton cloth without a supply of raw cotton as that a mind could produce thoughts without impressions or sensations brought to the mind through the senses. In other words, we are dependent for our ideas on our contact with the external world.

Free will only limited power for control of thought.—Second, we are to remember, that, after people have gotten their ideas by their contact with the external world, the freedom of their wills does not mean that they have unlimited power to control these ideas, to hold one and banish another. Professor James says our free effort means only power to hold one idea a *little longer* or a *little more intensely* before the mind. This means, clearly, that, if we would make this free power effective in directing our lives, we cannot be careless about the ideas and feelings we possess. It is easy to put too great a strain on the will. And, as the exciting causes of our thoughts and feelings come from our environment, we must be careful what this environment is. We must strive to get in touch with and keep in touch with the environment that will tend to give us the desirable thoughts and feelings, and to keep away from the environment that would give us undesirable thoughts and feelings.

Thus our inquiry as to the nature and extent of the power we possess by virtue of the freedom of our

¹The Duke of Argyle, "The Reign of Law," page 296.

wills brings us back finally to see our ultimate dependence upon environment. It is self-evidently true, as we saw at the beginning in a general way, that the inner factors of our lives cannot be developed by themselves, and now we see, by a more specific study of our free effort, that it means no power which makes us sufficient unto ourselves — independent of our surroundings.

Drummond on man's relation to his environment.

—Drummond, in one of his addresses, graphically describes the nature of man's relation to his environment.

"All plants grow, whether they grow in the soil or the soul, whether they are fruits of the wild grape or the true vine. No man can *make* things grow. He can *get them to grow* by arranging all the circumstances and fulfilling all the conditions. But the growing is done by God. Causes and effects are external arrangements, set in the constitution of the world, fixed beyond man's ordering. What man can do is to place himself in a chain of sequences. Thus he can get things to grow; thus he can grow himself. But the grower is the Spirit of God." "Not more certain is it that it is something outside the thermometer that produces a change within the thermometer, than it is something outside the soul of man that produces a moral change upon him. That he must be susceptible to that change, that he must be a party to it, goes without saying; but that neither his aptitude nor his will can produce it, is equally certain."

This doesn't mean, of course, that through heredity men are not furnished with varying capacities and aptitudes, but only that the life principle with these aptitudes and capacities would come to naught without an appropriate environment. This doesn't mean that man is a slave to his environment, that his will is not

free, that there is no opportunity or need for personal effort; but it does mean that the results of this personal effort will depend upon what environment supplies for it to work upon or work with. Man does not lift himself by his boot straps in any sense, physically, mentally or morally. He must have something upon which to climb. With this furnished, he must put forth effort, but the height to which he attains will depend largely upon the nature of that which serves as his ladder.

Environment plays tremendous part in lives of millions.— So, after saying all that can be said for the powers men possess within, we must come back to our starting point, and recognize the tremendous part that external factors play in the development of men's lives. We can easily understand how it is that an infant placed in some secluded part of China to-day and brought up apart from all western influences must grow up to be a Chinaman in all essential respects in thought and conduct. Certainly it would be utterly irrational to expect him to develop into a representative of modern civilization and enlightened Christianity, by the exercise of any power he possesses within himself. Turning to ourselves, while most of us are likely to suppose that our lives are largely the result of our own efforts, yet with only a little reflection we are forced to admit to what a great extent we have been dependent, for whatever height we have attained as civilized men and women, upon the environment in which we happened to be born. Incredible as it may seem, if we had been reared from infancy among savages we should now be savages.

THE NARROWNESS OF THE ENVIRONMENT OF THE
MILLIONS

Narrow environment of people in country and city.—Yet, dependent to so startling an extent as people are upon external conditions for the development they are to attain, still we find that the individuals making up the great mass of humanity, even in civilized nations, have lived and are living their lives in a very small area, amid conditions poor and meager indeed as compared with what is needed and what exists in the world. I have often been surprised to hear an American farmer say, “I haven’t missed chore-time here for years.” He had been there on his farm morning and night, morning and night, practically all the days of his life. The vast numbers of people in country districts may travel somewhat, going now and then beyond the limits of their narrow surroundings, but for the greater portion of their lives, even in civilized nations, they are tied down to a very small portion of the earth with the narrow range of knowledge and interest this implies. Even most of the millions gathered in cities live truly narrow lives. The vast majority of their days they tread the limited round from the home to the office or shop, and from the office or shop to the home. In rural life the great drawback is the meagerness and narrow range of one’s experience and impressions; in cities the danger is that the person’s attention will be so taken up by the multitude of commonplace impressions that he has little time for the more worthy objects of attention. Every person is where he can have a multitude of experiences, but the important fact to note is that there is an immense difference in the value of different kinds of experiences. Every mind is busy with such environment as it may have, but the results are trivial and

worthless or important and useful, according as the material upon which it works is rich, or poor. "Give the best," says President King, "*persistently a chance at you.*" In the light of such a principle it is unquestionably true that of all the helpful forces that ought to act upon us, only a few comparatively, even in civilized nations, reach the mass of men, whether living in country or city; or, if anything more than a few of such forces reach them, they reach them only at intervals.

THE GREAT ADVANCE POSSIBLE THROUGH THE WIDEN-
ING OF THE ENVIRONMENT OF THE MILLIONS

An intellectual and moral advance similar to material advance in last centuries.—Limited environment, then, we find, must be the great hindrance to anything like the fullest possible development and progress of the human race. And seeing as we have the extent of men's dependence on environment, we must believe, that, with the widening and enriching of the environment of the millions, with the bringing to bear upon the millions of the knowledge and forces now existing in the world, but so far enjoyed only by the few comparatively, there will come a tremendous advance in human progress especially along intellectual and moral lines. Indeed we can well believe that the advance that would be made along these lines would be similar to the advance that has been made in the last century or so along material lines.

Recent material advance result of more attention to environment.—The course of man's progress along material lines is worth consideration in this connection. For thousands of years in the performance of the physical work of the world man depended mainly upon himself — upon his own muscular power. This was supplemented by a few simple mechanical

contrivances for the utilization of water and wind power, and certain domestic animals. Finally he turned his attention with far greater care to his environment, to the forces of nature about him, studied their laws, and invented innumerable contrivances by which he could utilize them. A marvelous advance has followed. Within the last century man in civilized countries has multiplied his power for the performance of his physical tasks, scores and scores of times over. In four countries, the United States, Great Britain, Germany and France, there is steam power alone at work equal to the strength of all the able-bodied men of the race. And by means of the machinery through which this power is applied it is multiplied from ten to one hundred times more. As a result the wealth of the world has been increased beyond the wildest dreams of men a few centuries ago.

Says Dr. Strong in "The Challenge of the City,"—"The increase of material wealth is simply prodigious. . . . It is not intemperate to say that there was more material progress during the nineteenth century than during the entire preceding history of the race." No wonder this has become known as the age of Material Progress. And beneath it all is the better use man has made of his material environment.

Such advance along higher lines will result from more attention to environment.—"No one," however, as Dr. Strong goes on to say, "would think of making a similar statement concerning the intellectual and moral development of mankind." There are many who think there has been a retrogression. But while we may believe that there has been real intellectual and moral progress in this period, still it is beyond question that progress along these lines has not kept pace with material development. Yet the

lesson of history is that when there has been any considerable advance in wealth through exploration or conquest, unless there is also a great advance along the higher lines, civilization has gone backward.

Is it reasonable to believe that man is to make progress along intellectual and moral lines like to his latest advance along material lines? In the last chapter of one edition of his General History, R. V. N. Myers says, "The history of this wonderful age (of Material Progress), so different from any preceding age, cannot yet be outlined, for no one can tell whether the epoch is just opening or is already far advanced. It may be that we have already seen the greatest surprises of the age, and that the epoch is nearing its culmination, and *that other than material development*—let us hope *intellectual and moral development*—will characterize future epochs." Certainly those who have fully considered the extent to which man is dependent on his environment for the development he is to reach, and the poverty of the environment of the millions, must believe such an advance is possible if this environment could be sufficiently widened—if what so far has been within the reach of the few could be put within the reach of the many.

Many question this because they exaggerate the powers within.—It is to be expected, however, that many, perhaps the majority of people, would question at first whether any such advancement would result in themselves or others, from any change that could be made in their relations to what is outside them—to their environment. They have been thinking that the really important hindrance to their own and others' advancement is within themselves, their indifferent or evil wills. Such a view, we want to see, is one of the inevitable results of the mistake we have been pointing

out, the mistake of misunderstanding and overestimating the power within ourselves, and failing to realize the extent of our dependence on external conditions. Lack of the necessary external means, or failure to utilize properly the means within our reach, leads of course to only partial success or to failure and defeat. If now people have been putting an undue emphasis on mere inner effort and struggle, it naturally follows that they will not put the blame on the non-fulfillment of external conditions where it so largely belongs, but unduly ascribe their failure to themselves,

Drummond on the internal and external factors of life.—In one of his addresses Drummond speaks strongly on the truth involved here, though at the time he was applying it more exclusively to the religious life: "I am quite sure the difficulty does not lie in the fact that men are not in earnest. This is simply not the fact. All around us Christians are wearing themselves out trying to do better. The amount of spiritual longing in the world—in the hearts of unnumbered thousands of men and women in whom we should never suspect it; among the wise and thoughtful; among the young and gay, who seldom assuage and never betray their thirst—this is one of the most wonderful and touching facts of life." That the greater difficulty is, not within, but without, he points out in another connection. "Obvious as it ought to seem, this may be to some a *startling revelation*. . . . The change we have been striving after is not to be produced by any mere *striving after*; it is to be wrought upon us by the moulding of hands beyond our own. As the branch ascends, and the bud bursts, and the fruit reddens under the co-operation of the outside air, so man rises

to the higher stature under invisible pressures from without. The radical defect of all our former methods of sanctification was the attempt to generate from within that which can be only wrought from without. According to the first law of Motion, every body continues in its state of rest, or of uniform motion in a straight line, except in so far as it may be compelled by impressed forces to change that state. This is also a first law of Christianity. Every man's character remains as it is, or continues in the direction in which it is going, until it is compelled by impressed forces to change that state. *Our failure has been the failure to put ourselves in the way of the impressed forces."*

Others doubt because of unfounded pessimism about life.—Many others would be slow to believe that any such intellectual and moral advancement as that spoken of above is possible by any change in their own or other people's environment, because of pessimism about the possibilities of life itself — another result of the mistake we have spoken of — undue reliance on inner efforts, and a failure to utilize external means. Failures and defeats due to this mistake are ascribed by many to limitations of life itself, and hence lead to cynicism and pessimism, to talk about the illusions of life, and the impracticability of life's hope and ideals. When such people realize, however, to what an extent they have been "attempting to generate from within that which can only be wrought from without," when they recognize to what an extent their failure has been the failure to "put themselves in the way of impressed forces," then they can see and realize that the old pessimism about life is unfounded. Then they not only are able to see that the life that is given us does have infinite possibilities,

but they also see that a far more infinitely complex and rich environment must be sought, for the development of these possibilities.

It is a generally recognized truth that the higher the order of life, the more complex it is. The simplest life is the lowest order of life. The plant life is simpler than the animal life, and animal life is far simpler than the life of man. And as long as a certain measure of proportion is observed, the same law holds among human lives. But, again, we do not have a more complex or higher order of life without a more complex environment. The more simple and limited the environment, the more simple and limited the life. The plant is fixed in location and has a very limited environment. The animal is capable of more or less movement and hence the range of his environment is greatly increased. Man not only is capable of bodily movement, but through his mind he is able to be in touch with the distant and the near, the past and the present, and thus he is capable of an infinitely wider and more complex environment. In proportion as he gets this more complex environment, other things being equal, the more complex and rich is his life. No one can set limits to the possibilities of human life. But to realize these possibilities an ever wider and more complex environment is needed.¹

Coming to see that the *great principle* of life development is *reaction*, that we can develop our powers within *only* as we are in touch and keep in touch with the right conditions or forces without, we realize that there are in every one of us, in men and women everywhere, possibilities of mind and heart and will of which we never dream, possibilities we can know only as we get in touch with and keep in touch with

¹ See Henry Churchill King, "Rational Living," Chapter I, and "Personal and Ideal Elements in Education," Lecture I.

the right conditions outside ourselves. So, just as we look down to the savages' existence and see where we would have been with their poorer environment, so also are we justified in looking up to heights equally above our present existence, to see where we might have been or will yet be with a sufficiently better environment.

CHAPTER VII

THE LIMITATIONS OF LANGUAGE

Have we overstated the narrowness of people's environment? — Probably many, while reading the last chapter, have been thinking that we greatly overstated the narrowness of the environment in which the mass of people live, at least in civilized countries. While it would be recognized that the great majority of people do not travel widely, that they come in contact *directly through their senses*, with only a small part of the world and all that goes on in it, still it might be insisted that *indirectly through reading*, they have a wide environment. They take newspapers and perhaps read magazines and some books, and, therefore, some may hold, the great majority of people in the more advanced countries are put in touch with the whole world of to-day and much of the past.

Language the chief means in use for getting a wide environment.— It is true that in the civilized world this is known as a reading age. People read of a thousand times as much as they actually experience. It is evident, therefore, that we must consider the question of the adequacy, and the extent, of the knowledge or experience of things people gain by language, before we can know finally about the environment in which people really live, and the extent of their need of a wider and better environment. And, since language is the one means in general use for getting a wide environment, only as we understand about its sufficiency or insufficiency can we know the need of other means to serve this purpose.

How adequate is the knowledge gained through

language? — It is not at all necessary for us to take time to show that the knowledge or experience of things we gain by means of language is inferior to the knowledge or experience we gain directly through our senses — through sight, for instance. This is generally conceded. The questions for us to consider rather are: — In how far is such knowledge or experience inadequate? How great is the loss? These questions, though of the most far-reaching importance, are not easily answered. We cannot hope to grasp their full significance in a limited space, yet much ought to be done toward answering them.

Language a means of exchanging and preserving knowledge. — In the first place, language is often defined as a means of exchanging and preserving ideas or knowledge. But what is knowledge? Knowledge, we say, is *known* truth. That is, while truth may exist independently of our minds, yet it becomes knowledge only when some person perceives or experiences it — only when it exists or has existed as a state of some person's consciousness. With this fact about knowledge in mind, it is easy to see that language is a means by which men may "give," or make known to one another and to succeeding generations, certain states of their minds or conscious selves.

Figurative expressions about the use of language. — This brings us to the point where we can see how figurative are the expressions we ordinarily use in connection with books or written language. For instance, we are in the habit of saying that we find knowledge, thoughts or ideas, *in* books. But, of course, we know this is not so. We find, as we think about it, only ink-marks in books — not thoughts, but only signs for thoughts. We are in the habit of saying also that words convey thoughts. This too is only a figurative statement. We know that words do

not convey thoughts from one to another in any literal sense as a coal cart *conveys* coal. "Thoughts are not things to be exchanged or handed along."¹

THE PROCESS OF GETTING KNOWLEDGE BY MEANS OF LANGUAGE

In commerce in material things we get things themselves.—What then is the process by which language enables us to gain the thoughts or knowledge or experiences of others? We shall possibly be able to understand this process more easily if we compare the two great fields of exchange or commerce in which man is engaged — commerce in material wealth, and in ideas or knowledge by means of language; for it is indeed a fact that nations are constantly carrying on a great domestic and foreign commerce in ideas (or experiences) as well as in food-stuffs, clothing, etc. In making this comparison we might think first, for instance, of the coffee and bananas from Porto Rico which we have for breakfast. The planter in Porto Rico delivered his coffee and bananas to a steamboat company, this steamboat company to others, and thus finally they are passed to our table. Hence we are able to appropriate to our use the very coffee and bananas that left the Porto Rican's hands.

Matthew Arnold's description of his experience of Rome.—Turning now to the other field of commerce, one city where many ideas have been produced which have been sent out, or exported, to all the world, is Rome. Let us take up a volume of Matthew Arnold's works and consider in contrast the process by which we gain some of these ideas of Rome, by reading part of one of Arnold's letters.

"Lastly we ascended to the top of the Colosseum, and I seated myself just above the main entrance,

¹ Borden P. Bowne, "Personalism," page 65.

towards the Forum, and there took my farewell look over Rome. It was a delicious evening, and everything was looking to advantage. . . . I sat and gazed on the scene with an intense and mingled feeling. The world could show nothing grander; it was one which for years I had longed to see, and I was now looking at it for the last time. . . . I never thought to have felt thus tenderly toward Rome; but the inexplicable solemnity and beauty of her ruined condition has quite bewitched me, and to the latest hour of my life I shall remember the Forum, the surrounding hills and the magnificent Colosseum."

By reading we do not get his experience of Rome.

—Arnold on the Colosseum passed through certain experiences of looking over the Forum and the Eternal City. In response to the sight impressions from without, intense and mingled feelings arose within. The inexplicable solemnity and beauty of the ruined city stirred such thoughts and feelings that to the latest hour of his life he will, he says, remember the Forum, the surrounding hills and the magnificent Colosseum. Now Arnold takes a pen and puts down on paper certain ink-marks or words. Equivalents of these are printed in a book which comes to us. We open the book and find—not the throbbing states of the poet's soul, not his thoughts and deep emotions, which we can take bodily into our own lives, but only words—symbols or signs for Arnold's experiences in seeing Rome.

We get an imaginary and memory experience.—

How, then, do we get those thoughts or experiences of his, by looking at the ink-marks—by reading? Why, we try to *reproduce*, to *build up within ourselves*, largely by imagination, states of our own consciousness more or less similar to Arnold's. The process briefly is something like this. If we have visited Rome and stood upon the Colosseum and

looked over the ancient ruins and to the surrounding hills, then the words serve to recall to our minds what we saw and felt, and our imagination endeavors to build up, within, experiences similar to Arnold's. If we have never visited Rome, then the words can only suggest to us whatever we may have seen that we think is similar, or such ideas of Rome as we may have gotten from the odds and ends of cuts or photographs or reading, and thereupon our imagination tries to construct, out of such of these memory images as we may have, mental states or experiences more or less like Arnold's. The merest glance at the process shows that there is no possibility of getting in connection with the book the very same thoughts and feelings that the author had. Passing over the difference between him and us in capacity and development, we will consider one fact only which makes this impossible. He was in Rome receiving sight impressions of the city itself, while we are in our home, or perhaps in a library, and see only ink-marks! He had an actual experience of Rome, while we gain a memory or imaginary experience.

We want to give particular attention now to the vital difference between the experiences, whether of different people or the same person, in actually being in a place and seeing it, and in seeing it only in imagination and memory, as when we depend upon language or read a description of it. Everybody recognizes in a general way that there is a vital and profound difference between these experiences, and yet most people fail to have a definite estimate of the importance of these differences in a practical way. In trying to bring out these differences more fully, perhaps it will be wise for us first to think a little more specifically of what we mean by *actual experiences*, and *memory and imaginary experiences*.

Actual experiences.—By *actual experiences* we mean, first, those states of our conscious selves that are directly in response to impressions, brought to us through one or more of our senses, of physical realities actually present about us. It is a case where physical realities do exist outside us to correspond to the facts of our consciousness within. Second, we have actual experiences that may have no immediate connection with any sense impressions whatever, as many experiences of joy or grief or inner struggle.

Memory experiences.—Directly opposite, in a sense, to our actual experiences are our *memory* and *imaginary experiences*. After we have had actual sense experiences, after seeing a person's face, for instance, there is a tendency for this impression to appear in our consciousness as an image. These memory images may be called up when the object is no longer present to our senses. So also can our actual experiences of joy or grief, that may have no immediate sense impression as a basis, be recalled in memory. All these experiences are known as *reproductive imagination or memory*.

Imaginary experiences.—What we mean by an *imaginary* experience differs from these experiences of reproductive imagination or memory. When we imagine a new experience, say a tour to Egypt, or any unknown place, either by ourselves or by the help of a word description, the images called up are no longer in their nature or manner of arrangement a mere reproduction of any of our past experiences. The old memory images are being modified and rearranged. This kind of experience is thus called an experience of *productive imagination*.

Three advantages of actual sight experiences.—Now, turning to an actual experience like that of seeing Rome, we shall be helped greatly toward seeing its

superiority over the memory or imaginary experience gained by reading, if we analyze its advantages. Roughly, we can put these advantages, as we said on page 22, under three heads:—

First, we get sight or sense impressions of the place.

Second, the knowledge is gotten with the least possible effort and in the shortest possible time.

Third, we get the emotions the actual object or place can give.

1. The advantage of sight impressions.—The first advantage, that of receiving actual sight impressions, is very difficult to estimate in its full importance. It is difficult to realize the wonderful accuracy and the vividness of the impressions of things our eyes give us, the almost numberless features and details. No word description, however detailed it might be, comes anywhere near giving us as accurate, vivid and detailed impressions as we get by sight. There is really no comparison between the imaginary and memory impressions called up from within our minds by language, and the impressions of sight brought from without. "However vivid and energetic an ideational image may be, it can never receive the stamp of sensory reality." As Hume puts it: "The poet using the most glowing colors of his craft cannot so depict a scene that his description shall be taken for the real landscape. The mental picture of the sun's bright disk has less to do with the impression of sight than the least conceivable fraction of the glow worm's radiance. . . . And, although these images in the memory are caused in the first instance by sense impressions, they have nevertheless as little in common with such impressions as an algebraic sign with the object for which it stands."

If any one should question at first this strong language, let him do some experimenting for himself.

For instance, let him try looking at the "sun's bright disk" and then later see how vivid in comparison he can make his memory image appear. The more carefully this comparison is made between our actual sense experiences and our memory and imaginary experiences, the more the utter difference between them is realized.

Moreover, we are to see that the impressions or experiences built up in our minds when we read mean either a calling-up merely or a working-over of material already in our minds, while by looking at things themselves, or using any of our senses, we add to our store. Sense impressions are the raw material out of which all our inner life, which is our real life, is built up. As thought is being turned to this subject, it is found how inadequate and inaccurate and even ludicrous are often the conceptions of things and events formed by children, and even by adults when the store of their sense impressions is limited.

2. Sight impressions gained easily and quickly.—

Coming now to the second advantage of actual sight—the ease and quickness of getting knowledge—we find that educators are realizing more and more the great saving in effort and in time that results from teaching and learning through our eyes. The rapidity with which knowledge is gained by sight is inconceivable. It is not too much to say that in actually seeing St. Peter's for sixty, yes, thirty seconds, a person can get a more adequate impression of that great structure than he can ever get from words, or, for that matter, by means of all his other senses together. Moreover, not to speak of the greater permanence of these impressions, the knowledge gained so quickly through the eyes comes also so easily and is so vivid that it is gained with pleasure, while the impressions built up by means of the imagi-

nation and memory in connection with words require effort. With most people the effort is so great and the resulting impressions so unsatisfactory, because of the insufficient sense material they have had, that, as we shall point out later, they are likely to use language very little.

3. **Give emotions the place or object gives.**—The third advantage of actual sight experience, the emotions the object or place itself can stir, we seldom take into specific account, yet only a reference to the fact ought to be needed to make anyone realize that there is a great difference in the variety and intensity of the emotions we get when we actually see a place and when we sit in our everyday surroundings and read about it. We should understand too, that the feelings and emotions we experience in seeing any place, like Rome, are not simply the emotions the place itself inspires, but also the emotions aroused by the consciousness of our surroundings — the emotions which come from standing in that part of the world, from having all Italy and all Europe around us. But the advantage of getting the emotions the place or object gives can be realized only as we remember the part played by feeling and emotion in our lives. Their importance can scarcely be overestimated. Our feelings and emotions are the motive power of our lives. “Out of the heart, not out of the intellect, are the issues of life.” Ladd says, “The emotions furnish the springs of action for man in his rational activities.” Touch a person’s intellect without touching his feelings and you do not touch his life. It is probable that you cannot touch his intellect unless you touch his feelings somewhat, at any rate, it is only in so far as you stir his feelings that you influence his life. Interest means attention with a feeling side to it. Feeling gives motive, and motive leads to action,

and action is life. We are not surprised therefore to hear Sully say, "External objects only have value for us when they touch our feelings."

General underestimation of these advantages.—

Even the rough and brief analysis we have here made of the advantages of experiences of actual sight of objects and places over experiences gained by reading about them or reading of another's experiences of them, ought to make it clear that the differences between the two kinds of experiences are great and important. And yet, for hundreds of years, as we have pointed out in another connection, educators seemed satisfied with the experiences their students could get in connection with language, and even to-day most of us are likely carelessly to take it for granted that the experiences we gain by reading are practically the same in value as the experiences which the author had, and for which the words stand, or the same as the experiences we might have had if we had been in the author's place. We talk much to-day of adulterated drugs and impure foods. We want the coffee and bananas we buy to be of the very same quality and value as when shipped by the Porto Rican. But, when we turn to language to get knowledge or experiences, we do not apply such business-like principles to our acquisitions. Even the profoundest differences here may be easily overlooked.

Actual sight experience worth a hundred language experiences.—Let us see if we can sum up the matter with a more definite estimate of the comparative value to us of actual sight experiences and language experiences. Many authorities might be quoted, but we will refer to only one. On this point James Sully says, "Seeing a thing is worth a hundred descriptions of it." An illustration from physics will help us to grasp the significance of this striking state-

ment. In burning coal in a locomotive, engineers say only fifteen per cent of the heat of the coal reaches the water in the boiler and produces steam. The remainder escapes through the flues and the machinery and is lost. That is, eighty-five per cent of the power in the coal is lost. But, according to Sully, if a place, Rome for instance, has a certain power to affect a person, then only one per cent of that power ever reaches him in reading a description of Rome.

Vast significance for millions.—Here then we reach an answer to the question with which we started in this chapter,—how far is the knowledge or experience of things that we get by means of language inadequate, as compared to the knowledge and experience we gain directly through our senses? Who can estimate all this answer stands for? As we saw in the last chapter, the vast majority of people, even in the more civilized nations, are tied down to a very small portion of the world. For their touch with practically all that lies beyond they have been dependent mainly upon language. Now we see this means that not more than one hundredth part of all there is in the great world outside to broaden, inspire and develop them ever reaches them through language. There is much, of course, to be gained by reading, books of travel, for instance. We should try to get all we can in this way. Still, we are never to suppose we are getting more than one hundredth part as much as the person got who did the traveling, or as we could get if we did the traveling. No matter whether this estimate of Sully is an exact estimate or not, whether it is to some degree an overestimate or an underestimate, there can be no question but that the difference is enormously great.

Like difference between all actual and language experiences.—But, when a person writes of expe-

riences that are not based so entirely on sense impressions of sight, etc., is there a like difference between the author's experiences and the experiences we get in reading? Practically the same difference holds. To pass through another's experience of joy or grief or inner struggle of any sort, in imagination, as we do in reading, is radically different from passing through such experiences of our own. There is always a vital difference for the normal mind between an actual and an imaginary experience or even a memory experience, whether the actual experience is based on sense impressions or not.

Language of immense service to mankind in several ways.—Does this mean then that language is of little service to us? By no means. It has been and is of immense service to mankind. In the first place, we do not care to witness everything with our own eyes, nor to go through all experiences for ourselves. Of much of the world, and of what is going on in it or has gone on in it, we wish to know only in a general way. Here language may be sufficient. Then language is the only means of giving us knowledge of much we should like to see or experience for ourselves but which is impossible because it occurred in the past, or is occurring beyond our reach in the present.

Especially in interpreting actual experiences.—Other great uses of language are in giving information concerning experiences we may have and in interpreting and illuminating the experiences we are having or have had. None can estimate the value of language here. In serving these purposes books or written language in any form may well be compared to guide books prepared for those traveling in strange cities and strange lands. To one who is having the actual experiences of threading his way amid fright-

ful precipices toward a mountain summit in Switzerland, the guide book can save fruitless hours of toil or perhaps a fatal step. For the person amid historic buildings and ruins, the guide book adds a thousandfold to their interest and meaning. In the same way, when a person is struggling with many of the problems of life, when a person is striving to make progress toward the highest manhood or womanhood, the right book read at the right time, that is, the book treating of the particular experiences the person is passing through, can save untold waste of effort or pain or perhaps fatal mistakes; and, further, such books can add a thousandfold to the interest and meaning of life. Where uncertainty, doubt or hopeless confusion has prevailed, a beneficent order may be revealed to our slow minds. Light can be thrown on dark places. By means of language a new earth and a new heaven can be opened to unnumbered men.

Still language cannot give actual experiences.— But, great as is the service of language to us in these ways, much as guide books on travel and on life and the many activities of our life can mean to us *if we are having*, or even have had, *the actual experiences* of which the books treat, still we cannot too clearly see the fact, already considered, that it is utterly impossible for us to get those experiences themselves from language. Certainly no one would think he could get actual experiences of traveling in Palestine by reading a guide book on Palestine, and it is no less impossible to get actual experiences of any kind by reading of them in a book. As we have seen, the experiences we get by reading are not likely to mean more than one hundredth part as much to us as the actual experiences for which the words stand. If on the other hand we *have had* the raw material of appropriate actual experiences, then the book may, as

we have said, add wonderfully to their value. That is, what we get from language or books depends upon the store of experience with which we come to them.

Explains why millions use language so little.—

Furthermore, a most important fact for us to see is, that, as far as the mass of people go, if they have not had actual experiences similar to those of which a book treats, they will not read it. It is proverbial that guide books are of little or no interest to those not traveling in the lands of which they treat, and it should be expected that books of any kind would be of little or no interest to those who are not having or have not had, experiences similar to those with which such books deal. Indeed, only the recognition of this fact can explain the remarkable spectacle presented to us in the world to-day by the great difference in people's attitude toward books. Some consider them a necessity, like Henry Ward Beecher, who said, "A library is not a luxury, but one of the necessities of life. A little library growing larger every year is an honorable part of a man's history." But the majority of men, even in civilized countries, use books scarcely at all, or only by chance. Certainly they do not consider them among the necessities of life. Channing, speaking of the great life-books, says, "God be thanked for books. They give to all who will faithfully use them the society, the spiritual presence, of the best and greatest of our race." Yet hundreds of thousands speak of these productions as "dead books," and go through life without reading them. We talk of this as a reading age, but one who takes a broad view of even the most advanced nation must be impressed by the striking difference between the use of books by the millions and by the few.

Language inadequate as means of giving wide

environment.— We must come back then to the conclusion stated in our last chapter. We saw there that the millions are tied down practically to a very limited area — that they come in contact directly through their senses with a very small part of the earth and of all that goes on in it. Now we have considered language — the one means that has been in the reach of the millions for getting a wide environment — and we find it inadequate and ineffective, not only in that the knowledge or the experiences of things people get by its use are worth little more than one hundredth part as much as actual experiences, but also in the fact, that, because of this insufficiency of what they get through language, the majority read comparatively little or scarcely at all.

Need of means to supplement language.— Evidently, then, if anything more than a small part of the helpful forces in the world is to reach the masses of the people, language must be supplemented. Actual travel has been and must continue to be, as we all know, beyond the reach of all but the few. Clearly, the great need is for some means of taking the millions out of their narrow environment, and vastly widening the range of their sense experiences of the world. Thus they could not only get what language cannot give, but also be put in a position to get vastly more of the benefit which language can give.

This found in realm of pictures.— But, important beyond conception as it is that this immense work should be done, is there any means existing by which it can really be accomplished? We have already found an answer to this question. Surprising as the claims may have seemed to some, we have seen that this means can be found in the realm of pictures, more particularly in the use of the stereograph, one of the truly marvelous results of photography, that triumph

of human ingenuity which, in the words of Oliver Wendell Holmes, "is the most audacious, remote, improbable, incredible—the one that would seem least likely to be regained, if all traces of it were lost, of all the discoveries man has made."

If there is a possibility of finding in pictures a means of truly helping to free the mass of men from the narrow environment in which they now live, then, certainly, pictures are worthy of most careful consideration. However, we have been making only an outline study. In Chapter II we reviewed in a general way the different ends for which pictures have been used—as an expression of the beautiful or the fine art use; as language or the "picture-writing" use; and as a means of giving as nearly as possible the experience of seeing the object or place itself. Confining our attention to the third use, we asked how much of what we get by an actual sight experience of a place or object we can hope to get from pictures. This necessitated, in Chapter III, a consideration of the different kinds of pictures, that we might find the best fitted for this great purpose. We found the stereograph to be the climax of all pictures.

Wide environment made possible by stereograph travel system.—In Chapter IV we studied the stereograph as a representation, and in Chapter V we reached the conclusion, that, when the stereograph is used with the right helps and in the right way, people can get experiences that are comparable to those they would get by being carried unconsciously to the place or object in question and being permitted to look at it. Consequently we reached the conclusion that in such a stereograph travel system a means is found for giving the millions a wide environment. In the next chapter we shall inquire more particularly about the wide environment thus made possible.

CHAPTER VIII

THE WIDE ENVIRONMENT THE STEREOGRAPH TRAVEL SYSTEM GIVES

Uncertainty about the benefits a wide environment gives.— Though we do come to understand how we may gain experiences of being in the presence of and seeing places all around the world by means of the stereograph travel system we have considered, still we may fail to see clearly the ways in which these experiences are of value to us. In Chapter VI we saw, in a general way, to what a startling extent man is dependent upon his environment for whatever stage of development he is to reach. Nevertheless, we may still be uncertain both as to the specific ways in which benefits come to people from a wide environment and as to the nature and extent of these benefits.

Popular emphasis on the physical benefits of travel.— As was said in the Introduction, the benefits resulting from a wide first-hand knowledge of the world through the sense of sight are not self-evident, and, besides, this subject has received little consideration from most people. Heretofore this knowledge of the world has been possible only to the few through travel. But actual travel has been so utterly beyond the reach of the mass of people, that they have given little careful reflection to the subject, and so are likely to have many erroneous ideas about what is really essential in travel. Thus practically everybody is likely to make too much of the fact that in actual travel the body is moved from place to place, and hence they are likely to give undue prominence to

the physical satisfaction and benefit that may result. It is undoubtedly true that one of the chief motives that has started many people traveling has been the thought of physical benefit, and that one of the greatest sources of immediate satisfaction in traveling has been the rest thus gained from work and taxing cares, and the recuperation of physical vitality resulting from a more active out-door life. It would probably be surprising to know how many people go to Europe only when a physician advises the trip for their health.

Physical benefit not the essential thing in travel.

— But we know of course that bodily movement is not the essential thing in travel, and that physical benefit resulting therefrom is not the chief object sought by travel in the ordinary use of this term. If that were so, not one American out of a hundred would leave his own shores, or at least would leave shipboard after the ocean voyage. The tired New Yorker, for instance, would go out to the hills of New Jersey or the Catskills, or at most to the Adirondacks or the mountains of New England. The great majority of people are not so foolish as to take unnecessary trouble or to go to unnecessary expense to secure a certain benefit. No, the truly essential thing we need to travel for is knowledge and experiences of places and people in different parts of the world.

Emphasis on the immediate satisfaction sight of world gives.— Here again many are likely to make the mistake of thinking that the largest part of the satisfaction and benefit of travel is received while traveling. It is true that we do get much immediate pleasure in seeing what the world has to show. Few people realize how much of pleasure and profit are open to them here, either by means of actual travel or of the stereograph. There is a fascination and in-

spiration for old as well as young in seeing the world. Nevertheless, all this immediate pleasure and profit, considerable as it is, must be considered the smallest part of the satisfaction and benefit that the sight of the world brings to us. Where, then, are we to look for the greater portion?

VASTLY GREATER SATISFACTION AND BENEFIT RESULT
OF INTERESTS STIRRED

Wide environment means knowledge not of places merely but of what occurred in them.—In the first place, we should see that the vastly greater amount of satisfaction and benefit that the sight of the world gives us results from the quickening of old interests, and the increased capacity for hundreds and thousands of new interests, as to all that has occurred, is occurring, or will occur in the places we have thus seen. Of course we cannot be conscious of all this at the time. It is only as we happen upon any one of a thousand things connected with the places seen, of the people who have lived or are living there, of the deeds that have been done or are being done there, of the thoughts that have been written there — it is only as we happen upon any one of these things and note that we have a new or increased interest in it, that we commence to realize how much this sight of places is to lead to.

We cannot see too clearly then that the wide environment made possible either by actual travel or by a stereograph travel system does not mean merely *the sight of more places* on the earth, but a wider knowledge of all that has gone on, is going on, or will go on, in these places. Who can estimate the extent of the environment that is thus opened up to us? It is not so much the familiarity with the material Rome of to-day (gained either by actual

travel or the stereograph), that helps us so greatly, but rather the keener interest we ever afterward feel in all we may learn about the manifold life that has been lived there—the thoughts and suffering and heroism and achievements of fellow human beings by the Tiber for more than two thousand years.

Benefit received through all future years.—Certainly, too, as intimated above, we should see that the benefit we are to receive should be expected, not only at the time we are seeing the place, but also through the future years. The intimate knowledge of places, gained either by an actual visit or by seeing them so vividly through the stereoscope, is to be considered above all as an *investment*, which is to give us returns through all the succeeding days of our lives. A large part of our effort is put forth along lines that will bring immediate returns. Here, however, the vastly greater proportion of the benefit is to come in the future. This knowledge of places means that we shall be prepared to get more out of men and books as we go on through life. As a result of the interests aroused, thousands of newspapers, magazine articles and books will have an increased value for us, and, besides, we shall be able to give more to and receive more from the people we meet. Much as are the satisfaction and benefit that come to us directly from the place, far more comes to us indirectly through these other sources.

Common misconceptions as to the use of stereographs.—With this brief consideration of some of the benefits that come to people from a wide environment, gained either by actual travel or by the stereograph, and the ways in which these benefits come, we are in a position to see how great a mistake most of us are likely to make in judging of our use of stereographs. How common has been the remark even by

intelligent people who have had stereographs in their home, "Oh, we never use them any more. We looked them over many times at first, but now they are put away somewhere. They are probably up in the garret." To give a concrete case, we heard a salesman tell of a call he made at the home of a New York business man. As soon as the man saw what the salesman had, he said, "There is no use showing that to me. I bought several hundred of those stereographs last year and we looked at them for a time, but now I don't believe I have picked them up in several months. You see it is something you put aside and don't use." The man was evidently sincere, and the salesman, not having given the matter very careful thought, was inclined to agree with him. He commenced to feel that he was trying to get the man to buy something he might not continue to use.

Compared with spelling book and arithmetic.—There was, however, a great fallacy beneath the man's reasoning. It would have been evident if the same sort of reasoning had been applied in some other fields—if, for instance, he had referred to his public school days and said, "What was the use of buying and putting time on that spelling book and arithmetic? I haven't looked at them for thirty-five years. They are up in the garret somewhere." At once the salesman would have said, "Why, that is not the way to look at the matter. It is not a question of the *books*, but of the knowledge you gained from the books, and that you have been using every day of your life since." And though at first we may fail to see it, the fact is precisely the same with regard to our "use" of stereographs. If we look at Jerusalem through the stereoscope from several standpoints even once, thoughtfully (especially if the patent maps and descriptions are provided and we take time to note what our posi-

tions are about the city and what portions of it we see, and if we read something about them), then whenever thereafter we see or hear the word "Jerusalem" we shall not see the word merely, or hear some sounds, or think of a dot on the map, but immediately we shall see Jerusalem as we have seen it in the stereoscope. Whenever we hear a reference to any person or event connected with Jerusalem, the sight of the city will flash before our mind. That is, we shall recur to and use our knowledge of the place a thousand times apart from the stereoscope, where we do once in it. And this of course is the real "use" we make of stereographs.

An illustration of such use.—Our own experience illustrates the truth we wish to emphasize here—our experience with some stereographs placed in our home in our early days. They were fairly good stereographs of places here and there around the world. At first they were looked at many times. Then they were put aside and probably were not picked up more than a few times in a year. Now it is undoubtedly true that if anyone had tried to sell the father of the family more stereographs, he would have said, "No, I don't think it wise to put any more money in them. We bought a number some time ago and while they were looked at for a time I doubt whether that boy looks at them more than once a year." That would have been the natural thing for him to say, and yet he couldn't have made a greater mistake as to the *real use* we were making (not to speak of the use we were to make), of those stereographs. We didn't go to the little table where they were kept and take up the stereoscope and the stereographs very often, but hundreds of times a year we thought of what we had seen in them. Whenever we thought of New York, we thought of the place we had seen in the

stereoscope. Whenever we thought of Niagara Falls, we thought of the place we had seen in the stereoscope. We never saw a reference to any place we had seen in the stereoscope, in a newspaper, book or magazine, but we were more likely to notice it and read it. Whatever we read meant far more to us. And, years afterward, when we went to Niagara and New York (when it might have been supposed that the stereographs had passed out of our life completely), the places we were going to see were above all else the places we had come to know in the stereoscope. When we reached New York and Niagara the places we wanted to see more than any others were those places we had already seen often in the stereoscope, and, besides, we seemed to find a special satisfaction in seeing these places.

Common and natural then as it is for us to think of the stereoscope and stereographs as we would of some kitchen utensil — to think that we or others use them only when the stereoscope and the stereographs themselves are handled, still we cannot see too clearly how utterly unfounded and mistaken such an attitude is. On the other hand, as we have seen, we ought to think of them more as we think of a spelling book or arithmetic, because the knowledge we get from stereographs, the knowledge of places, like the knowledge we get from the spelling book and arithmetic, is knowledge we have occasion to recur to and use again and again throughout our lives.

Contrast with use of arithmetic or spelling book.

— There is one important difference, of course, that we should notice in this comparison. After we have learned a multiplication table nothing is gained by returning to it again and again in the book. The book may be thrown aside. There is much gained, however, by looking again and again at places in the stere-

oscope. Rome will have new messages for us every year of our lives. The great places of the earth are so rich in their suggestiveness, that we can never exhaust all they have to give.

Two conclusions then we must come to in regard to the use people make of the stereographs they may have. First, that it would be wise for them to look at them far more than they probably have been looking at them; second, that they *have been using them* vastly more than they have thought they were using them.

So far in this chapter we have sought to make clear that the wide environment made possible by the stereograph or actual travel means — not a wider knowledge of places merely, but of all that has occurred, is occurring or will occur in these places; and that the surprising tendency of people is to overlook the extent to which they might gain or even are gaining this inconceivably rich and important environment as a result of the use of the stereoscope and stereographs.

PLACES GIVE ADDED POWER TO REALIZE WHAT HAS OCCURRED IN THEM

The difficulty and importance of making the distant and past real.—The experiences of a place, gained either by travel or by the stereograph, stimulate our faculties and give us greater power to make real to ourselves whatever we have known that has occurred in the place, or anything of which we may read or hear of what may yet occur in the place. It ought not to be necessary for us to take time here to show that reading of past or distant events, mere going over names and dates, may have little influence on people's lives. It is only in so far as shadowy events and characters become realities to us, as the distant comes near, as the dead become alive again,

that we are influenced. We have already considered the profound difference between the experiences we gain by reading of things, events and people, and actually seeing them. We know also that there are numberless events that have transpired in the past that we cannot see, and much that is now occurring and that will occur in parts of the earth distant from us, and which therefore we cannot see. The fact we want to note especially now is that a knowledge of the places where these events occurred or will occur gives us power to make these events far more real to us. "Realization," says Dr. Hervey, "is of vital importance. How we warm toward a story laid in a region every foot of which we know! And, as compared with this, how cold we are in danger of being toward a story about people and places which we are powerless to clothe with the imagination, because we have never seen such persons or places, and have never seen pictures of them. So common is this experience that we do not realize how cold we are."

Dr. Harper on the importance of knowing the land of Palestine.—Thus we find the late President Harper saying that the greatest difficulty to be overcome in an intelligent study of the Bible is to do away with the sense of unreality attaching to its characters and events. We sit down here with the old book in our hands, but the people of whom we read, lived, and the events in which they took part, occurred, thousands of years ago, and in a land thousands of miles away. It is impossible for us to *think* ourselves into those distant lands and back to those remote times, and make those events and people real to us—real as people and events about us to-day. What now, says President Harper, can be the greatest help to us in overcoming this greatest difficulty? Why, first of all, we must see that the land is real, and as he says,

to most of us even more than most distant lands it is not real. We have thought of the Jordan as the "River of Death," and Zion as a "Spiritual Kingdom," until Palestine has come to take on a mythical character. Surely as long as the places that do exist to-day are in any degree unreal, it will be idle to suppose that the events which occurred in those places, the people who lived in them, can be actualities to us. Consequently, we must know intimately — we should see if possible — the very stone and earth of which its historic places are composed. When the land is known thus intimately, it can help us as nothing else can to make its past events real, and its ancient characters alive again. What has just been said in regard to the part a knowledge of the land of Palestine plays, in putting us in vital touch with its momentous history, holds true, likewise, of the knowledge of any land with relation to its events and people.

The effect of a visit to Gettysburg.—But easy as it may be for us to recognize the general truth involved here, it is almost impossible for us fully to estimate the power over the human spirit of places which have been consecrated by the lives and by the death of men. Speaking on this subject a man said recently: "I had an uncle killed at Gettysburg. As a boy I had a deep interest in the battle, my natural interest in this critical battle of my country's greatest war being intensified by the part my uncle took in it and by his death. I not only read all I could find about Gettysburg, but listened eagerly to all I could hear. My grandfather went to Gettysburg immediately after the battle and remained there for several days until my uncle's death. He thus was compelled to see all the horrors that such a terrible struggle leaves in its wake. In my intense interest I had asked him to tell me many times over of all that he saw,

I supposed I realized all that it was possible for me to realize as to what such a battle meant. A few years ago, however, I had the opportunity of visiting Gettysburg. I went with a guide over the field to Culp's Hill, Big Round Top, Devil's Den, Little Round Top, and finally to that place which is known as the High Water Mark of the Civil War, the very spot where Gen. Longstreet's forces on the last day of the battle broke through the Union line. There was the very clump of trees which he pointed out to his men as the central point of their attack. There was the very stone wall over which they had charged and where the terrible hand-to-hand fight occurred. As I stood on that spot, I was able to realize, as I never had done before, what it meant for men to turn their backs on their homes, on all they loved in this world, on all that life meant, and face death for what they believed to be the common good. Then I caught glimpses as never before of the terrible price others had paid for those privileges which I was every day enjoying. My own selfishness and littleness were flashed before me as I wondered whether I would be ready to give up my life, to pass on to others what so many had died to pass on to me. I had already gotten all I could from descriptions, from the words of eye-witnesses, but the *place* had something to give me, which I had never gotten before. The place where these men died had the power to wake within me what nothing else could."

The testimony of history to the power of places.—History gives undisputed testimony to the almost magical power that places, through their human associations, can come to possess. Whenever any great leader in any line of human activity has appeared, whenever one has arisen among men to liberate them in body or mind or spirit, people have instinctively

felt that they could get new power to comprehend his life and realize it within themselves, if they could go to the *place* where he lived or see some *material object* with which he actually had to do. So we have throughout the ages constant streams of pilgrims making their way, at vast cost of suffering and even of death, to holy cities and holy lands, to birth-places and burial-spots, to battlefields and to the scenes of notable achievements in every line. The vast results that have followed in the deepening and spreading of faiths, the waking of life, the spreading of civilization, no man can estimate.

The testimony of great leaders of men.—Great leaders of men have always been aware of the power that places, through their human association, can come to possess. Now and then you see an article or read a speech by some man who rises above the narrow limits of his own life or the life of his community, and is able to take in his view a whole nation's life, and to consider the various means required to conserve that life and to lead it upward to the highest levels. Such a man will speak of the great loss it would be to a country like the United States, if it should allow the memory of the great men and the noble and heroic deeds of its past to die out. Accordingly, they start movements to have great battlefields set aside; they go down into their pockets and make a personal sacrifice to have statues made and set up, asserting not only that those living to-day need these places and monuments as reminders of the deeds of our forefathers, but also that these memorial places and monuments have power to call to life again in men to-day the lives of the past. Others look beyond the limits of their own national life, and give freely of their time and money that memorials of the noblest deeds, wherever they have occurred,

all around the earth, shall be cherished and preserved. Certainly nothing like an adequate estimate of what the world contains for the development of the human race can be made, if we leave out of account the *places* and *objects* that have been hallowed by their associations with human lives.

Summary of chapter.—In this chapter we have been considering the wide environment made possible either by actual travel or by the stereograph—we have been asking about the nature of the benefits that can come to people from such an environment, and the ways in which these benefits come to them. The more we have looked into these questions, the more important we have found them to be. In the first place, we found this wider environment means a knowledge not simply of more places on the earth, but of what has occurred, is occurring and will occur in these places—an environment which people will be growing into throughout their lives. In other words, we found that it is only a step, and a natural step, from the knowledge of a place where a sublime thought has been written, where a noble man has lived, where heroic and unselfish lives have been given for the truth, to the knowledge of such thoughts, such lives, and the spirit of such deeds. In the second place, we found that the knowledge of places, the actual sight of places, gives people new power to make more real to themselves anything of which they may read or hear that is associated with the places. Thus we have seen that to be brought nearer the great places of the earth means to be brought nearer to the men who lived and the events that occurred in them; it thus means being brought nearer to the most helpful personalities, the most soul-inspiring events that have uplifted the race.

Surely now we have reached a point where we can

understand and appreciate more fully why a wide environment is so important in the development of men's lives, as indicated in our sixth chapter.

Vast importance of the stereograph as a means of giving the millions a wide environment.— Now also we ought to be in a position to appreciate more fully the importance of any means by which the mass of men can be given such an environment. This is a matter that has never received anything like the attention it deserves. As we have already seen, the great majority of people are tied down by the necessities of their lives to a small part of the world. Only a few comparatively can ever actually go to famous historic places and see the memorials or the vast achievements that tell of the heroic efforts man has put forth in so many lines. Of what far-reaching importance, then, must be any device or means which can lift the millions out of their narrow surroundings, and put them in touch with what is best and most inspiring in the world. And yet, as we have seen, it is possible for this to be done by the stereograph system we have been studying.

Surely such a system can be judged, not by what it is in itself, but only by the importance of that which can be accomplished by its use. As a means of putting people generally in touch with such an environment as we have been considering, the stereoscope has certainly an importance no man can estimate. By it the millions can be put into intimate relations with whole nations that otherwise would be beyond their direct knowledge. They may have aroused within them thousands of new interests as to these nations' past, present and future. It means, as we have seen, the introduction of the multitudes to a new world of literature. They not only can be led to read more,

but they are given new power to get more out of what they do read. Hundreds of books are thus given a new value undreamed of before. People are prepared to get more out of every newspaper and magazine. It can increase for people the inspiring power not only of newspapers, magazines and books, but also of ministers, lecturers, and whomsoever they meet. We know the efforts and time put forth in using the telephone are small indeed compared with the results accomplished in talking with a man a mile or a hundred miles from us. In the same way, we should see that the results attained by the use of such a means as we have been considering for putting us in touch with distant places, are out of all proportion to the time and effort required.

PART II

WHAT ARE THE NECESSITIES OF LIFE?

It has been shown that we can get in the stereoscope (with the helps we have described) experiences comparable to what we should get by being carried unconsciously to the most important places around the world and being allowed to look upon them. It has been shown also that such knowledge of these places is the surest guarantee that we will be led on to a knowledge of what has occurred, is occurring or will occur in them; that it is only a step from the knowledge of the place where great lives have been lived, great deeds have been done and great thoughts written to the knowledge of those lives and deeds and thoughts. But life is complex and puzzling; many erroneous ideas are prevalent; and so many people are likely to reply, "Yes, I grant all that; but I fear it is not wise or prudent for us to expend much money or time for the purpose of gaining such knowledge or acquaintanceships. I fear we cannot afford it. There are many things we must have, but we do not really need this. This is not one of the necessities of life. This is something we can do without."

The tendency to make provision for physical necessities the end of life.—These are questions and fears that arise in the minds of a great many people to-day in regard to any object or to the obtaining of any knowledge, that they cannot use directly in their business or in making provision for what they call their livelihood. Sometime ago I was discussing with a friend the field of usefulness ahead for the stereoscope, and in the course of the conversation I cited,

by way of comparison, the great utility of the telephone, the telephone being an instrument for putting us in touch with people at a distance, through our sense of hearing, the stereoscope an instrument for putting us in touch with places and people at a distance, through the sense of sight. "Oh," he said, "but my wife could call up the butcher with the telephone." In this response we have a concise expression of the widely prevalent feeling, just referred to, the controlling feeling in so many lives — namely, that the one end of all our efforts here is to earn our livelihood and to lay up a competence. Moreover, according to the real working theory of the mass of men, this "livelihood" means practically only what is ranked under the heads of food, clothing and shelter — provision for their bodily needs and comforts. Consequently they feel that only such things as come under these heads are to be considered necessities in any true sense. Of course such people almost without exception make provision for their bodies far beyond what necessity requires. Much of what they consider necessary under these heads of food, clothing and shelter are not necessities at all. Furthermore, this class of people do spend much time and money for other than bodily needs, but they do this in deference to the customs of others, or as recognized personal indulgences. People holding this view as to the primacy of physical needs may consider of great importance the development of the mind, education through books and travel, but in their opinion all this has value only because it may fit a person to provide more easily and fully along the line of the physical necessities.

We now wish to examine more carefully into this view of life — especially do we want to take up the question, What are our real needs? And then, What

is required to satisfy these needs? Or, What are we to consider the necessities of life? Thus we shall be able to determine whether what is given by such a stereograph travel system as we have described is to be considered *among the necessities* of life.

LIFE IS THE PURPOSE OF OUR EXISTENCE HERE

In the first place we should see that we are not likely to reach any final answers to these questions unless we ask first, What is the purpose of our existence here? Only as we feel fairly sure about this, can we hope to know with any certainty what will be required to enable us to attain it; and this means that only then can we know with any certainty what are to be considered the necessities and what the luxuries of our life.

Development of life is purpose of man's existence here.—What then is the true purpose or end of our existence here? The wisest minds of all ages have been seeking earnestly to find an answer to this question, and the conclusion reached, from their own life experiences and from the observation of the lives of the millions, is, that the purpose of man's existence in this world is the fullest possible development of his whole personality. Every good college faculty to-day acts in accordance with this conclusion, considering it a duty to call out and develop, as far as possible, all the powers of its students. Of course this supreme end for us may be stated in various ways as, "the ideal good is conscious life in the full development of all its normal possibilities," "well-being," "the perfection of human character," etc.

This also means happiness.—At this point some may be ready to say that while this is very well in theory, yet, as a matter of fact, in actual life happiness or pleasure *is* the goal which people strive for. Indeed, it does often seem that the one "object which all pursue with or without reflection, but everywhere and always," is pleasure. This fact does not, how-

ever, necessarily conflict with the conclusion previously stated. The great authorities on life say that if we give the right meaning to the words happiness and pleasure, there is abundant justification for this deep-seated longing of men. True happiness, they say, is always an accompaniment of progress toward a higher excellence, a fuller development of our being, just as discomfort — a sense of want, and pain — is a necessary accompaniment of incomplete development. In other words, we find happiness just in the proportion that we fulfill all the laws of our being. "If, then, we understand by happiness, not pleasure in general, but regard it as the feeling of our own perfection and excellence, it is clear it may be an end for us."

We are to see clearly, then, that increasing development of our being cannot be acquired without gaining also the satisfaction and joy of possessing it. Happiness is as natural to man and as sure as is the possibility of development. It is true, of course, that in this life our increasing development is often obtained at the cost of feelings of want, and through struggle and discipline. Much of our happiness comes only as the result of our striving, but it comes as a normal, natural result, beneficial to us physically as well as in all our vital activities. Even in our putting forth of effort we find we can approach more and more to the point where pleasure predominates and our effort takes on the nature of play, effort put forth for its own sake, as noted on page 262. The supreme good for us then, we can say, is the full development of our whole being, and this good consists in this development or perfection and happiness inseparably joined. As Professor Bowne says, "There is no way of defining the perfection of an agent except in terms of its well-being or happiness."

Thus the things of this world or work are not

the ends but means.—If now the end for which man is put into this world is the development of his being then we are to note that it necessarily follows that the accumulation and possession of the things of this world, or the performance of the work of this world, cannot be ends in themselves. We all recognize that schools exist for the children, not children for the schools. The child is sent to school, not because the tasks of the school are so important in themselves that the child should be sent to do them, nor because school prizes have such value in themselves that the child should be sent to win them, but that the child may develop himself in doing the tasks and in winning the prizes. The development of the child is the end; the tasks and prizes of the school serve only as means for the accomplishment of it. Just in so far as the school is made an end in itself, and the child is sacrificed to it in any way, physically, mentally, morally or spiritually, not only is the very purpose of the school missed to that degree, but it becomes a curse.

Only a little reflection shows us that humanity must stand in essentially the same relation to the work and things of this world. We are not sent here because it is so important that the soil of the world should be cultivated, industries organized, great cities built and governments established, nor because the things of this world have such value in themselves; but that we may be developed in doing the work and in striving for the prizes. Says Emerson, if a man lose his balance and immerse himself in any trades or pleasures for their own sake, he may be a good wheel or pin, but not a cultured or wise man. Humanity is the *end*, and, whenever humanity is sacrificed solely for the performance of the work of this world, or for the possession of the things of this world, the very

purpose of man's existence here is in so far defeated. Furthermore, taking this view of the work or things of this world never means that we attach really less importance to them. Indeed, it is the man who tries to make them ends in themselves who is most likely to feel after a time that they are not worth the effort. The man who regards them in the light of means to his own and others' development, attaches infinite significance to them.

The evil of greed and avarice and the way they were born.—Because of mistaken notions about the true end of life not only an enormous amount of waste effort but an inconceivable amount of wrongdoing and suffering have resulted. One of the deeper reasons given for the prevalence of these mistaken notions about the true end of life is that in the earlier stages of man's existence the utmost struggle had to be put forth to obtain the means of satisfying the bare needs of man's physical nature. Later, with the increase in intelligence and skill and the invention of various appliances, many were able to satisfy their physical wants more easily. Then, however, they had come to think of these means for the supply of their physical needs as being ends in themselves, and hence set out to accumulate them. Thus avarice and greed were born. In obedience to this spirit, the same policy was pursued with unabated energy after the spur of want was withdrawn, and wholly regardless of whether the object pursued was necessary or in any way capable of rendering existence more comfortable.

Wealth the means of inestimable blessings.—One feature in the world to-day that should be referred to particularly in this connection is the various forms of wealth in which the means of life can be accumulated, especially money. What makes it possible for this mistaken and evil spirit of avarice to dom-

inate so many lives to-day is this subtle form of wealth, in which these means which they are mistaking for ends can be sought and accumulated. If it was a matter of piling up vast surplus stores of food, clothing, etc., people would not go on sacrificing to so frightful a degree the higher interests of themselves and their families and of others whose lives they often so largely control. But money and other forms of wealth can be a symbol of many of the noblest virtues, industry, frugality, temperance. Besides, it can be quickly converted into the highest blessings, food for the hungry, shelter for the unprotected, opportunities for education and every form of culture, medicines and medical skill for the sick. It is easy to understand therefore why anything that can be immediately converted into innumerable blessings should be so often mistaken for and worshipped as an end in itself, an end so important that people should give time and thought without stint and even employ dishonest and unjust methods, and practices injurious to others, for its possession.

This makes injustice in regard to wealth so great a wrong.—On the other hand, it is for the very reason that money is a means of obtaining such inestimable blessings that injustice in gaining or possessing it is so flagrant a wrong—that it is such a sin for people to disregard the rights of others in getting money, or to withhold what belongs to others. For this reason too there can be no permanence and peace in industrial or business conditions until substantial justice prevails. It is now an accepted fact among intelligent people that the one condition of permanence in any government is substantial justice to all concerned. It is foolish not to recognize that the same condition is the one basis for permanence and peace in the business relations of men.

The present injustice in the distribution of wealth.—It is undoubtedly true that great injustice does exist in society to-day, especially with relation to the distribution of wealth. Those who come into the possession of wealth through superior natural ability, special privileges, chance opportunities or inheritance, are able, under our present form of society, to gain and hold more than their fair share of what society produces. More equable conditions ought to and must prevail.

Seeing wealth as only a means of life is a condition of more just distribution.—But, whatever changes are to be made, it should be seen that, in bringing about a more just distribution of wealth, it is fundamentally important that people generally see more and more clearly that money or wealth is not an end, but only a means to an end. This great movement must ever be hindered in so far as the different classes regard wealth as an end in itself. Rather Emerson's idea should be spread—that the true pay for work is in the power or development that come in doing it. Some money-pay is indeed essential and, of course, is usually received. The great source of contention to-day is over the question of what is the just share of each class or individual. In approaching the settlement of this question, Emerson would have us see that the man who withheld from us part of the just money-pay for our work is not cheating us out of the *real* pay. The real pay no man can take from us. We can cheat ourselves out of that only by failing to do our work well. Furthermore, he points out that the money of which any man has kept more than his just share can be of no real benefit to him. His possessions will shrink in their power to give him satisfaction, to the amount he has really earned. Indeed, whatever more than his share he has

withheld will be a curse to him. Certainly much of the vast amount of injustice in society will be cleared away as this view of life and work and wealth prevails.

WHAT IS THE LIFE WE ARE HERE TO DEVELOP?

Inadequacy of common conception of life.—If the end of our existence here is the full normal development of our lives, with happiness in proportion to that development as a necessary accompaniment of it, then the next question, a fundamental one also, for us to consider, is, What is the nature of this life we are here to develop? It is not too much to say that people generally are far more adequately informed about the nature and needs of their business, their crops or their stock, than about the nature and needs of their own lives. One reason for this fact is that human life is far more complex and difficult of comprehension. However, it is the one thing of supreme importance to us, and hence ought to be and must eventually be the object of chief attention. Even a brief survey of it will be found important for our purpose.

1. **Physical life.**—First, we have a material body and a physical or animal life. This physical life we have in common with all animals, with its varied instinctive wants, pains and satisfactions.

2. **Intellectual life**—**lifts man inconceivably above animal.**—Then, we have an intellectual life—capacity to perceive, to think and to know, to understand, to reason, the power to be conscious of ourselves, of the lives we are living and of the universe around us. It is difficult to realize how the capacity to reason raises us above the life of an animal. The animal has eyes, it is true. It sees men and things about it. Yet it is unable to become really conscious of the meaning of what it sees. But by the possession of reason man is able to go far beyond what he really sees;

he can go from known effects to unknown causes. Thus he can get at the underlying principles that give unity and meaning to the world about him and to his own life. He can organize his observations into knowledge, and through his science and history his life is infinitely removed from the life of the animal. The world opened up to us by our intellect so far transcends that which the animal looks upon that comparison is impossible. All that makes our life really worth while is above the animal.

Importance of developing the intellectual life.—

But, whether we wish it or not, our intellects have been bestowed upon us and our welfare depends upon our development and use of them. Animals are given instincts sufficient for their guidance. Man's instincts are far from sufficient for his guidance. It is left for him to gain by his intellect the knowledge required for this ordering of his life. His very existence is made dependent upon his doing so. We are in a world, where, other things being equal, man advances (or is rewarded) in proportion as he develops and uses his intellect and loses (or is punished) in proportion as he neglects it. Everywhere, and more and more, brain is dominating over muscle or mere brute strength.

3. Æsthetic life — the large and unsuspected part it plays.— Third, we have an æsthetic or beauty-loving nature, a sense of the beautiful and the ugly. Most people are unaware of the large part which the demands of this side of their nature play in their lives. A vast part of the expenditures made under the heads of food, clothing and shelter is not made for the satisfying of bodily needs only, but in response to people's sense of and desire for the beautiful. People want not only to be warm, but also to "look well"; not only to satisfy their hunger, but to have their food

tastily served; not only to be housed, but to have beautiful homes beautifully furnished. Most people would be astonished to know how small a part of their expenditures along these lines represent necessities for mere *bodily* wants.

Misconceptions as to the beautiful.—The Puritan distrust of the pleasurable and hence of the beautiful has now generally given way to a saner view of life. A more general feeling still prevalent is that the love of the beautiful is an effeminate sentiment, not compatible with strong, robust, manly qualities. The Japanese race alone disproves such a theory. The love of the beautiful is deep seated in every normal human life, and its satisfaction is natural and healthful. Says President Eliot, “Among the means of increasing innocent, pleasurable sensations and emotions for multitudes of men and women, none is more potent than the cultivation of the sense of beauty. Beauty is infinitely various—and its infinite value for pleasure and content only waits on the development of the capacity in human beings to feel and enjoy it.”

Need of cultivation.—Here, again, however, this sense is implanted within us whether we will or no. Only a little thinking shows that it must play a large part in our lives. If we do not take account of it, train and refine it, it will run to weeds, to gaudy, extravagant display and vulgar ostentation. Properly cultivated, it opens up an inexhaustible field of pleasure, of a much higher order than the coarser bodily satisfactions. Our pleasure in the beautiful is unselfish; such pleasure deprives no other of the same. In fact, our pleasure is increased if shared with others. Thus enjoyment of the beautiful leads us up to another aspect of our life of which we are now to speak.

4. **Moral life — its fundamental facts.**—Fourth,

there is in each of us a moral nature, a moral life. The essential facts of our moral life are a capacity to know good and evil, a sense or feeling of obligation to choose the good and refuse the evil, and a certain satisfaction resulting from the choice of the good and of dissatisfaction or pain resulting from the choice of the evil. This inner sense of good and evil with the sense of obligation to choose the good and refuse the evil is commonly known as conscience. The course of conduct imposed by conscience is known as duty. The science based on the study of man's moral nature and of his duties is called ethics.

A free and conscious taking over of the natural life.—In his moral nature man is raised even more above the animal life. Ages ago men realized this, as shown in Genesis iii, 5, "Ye shall be as gods, knowing good and evil." The animal is the mere slave of whatever impulses may come to him from without and of wants and blind instincts within. The resultant of all these forces constitutes the animal life, destitute of any moral quality. Man's life starts in the animal or natural, and up to a certain stage is non-moral—a life of instinct, of internal and external impulse. Our moral life is not something apart from what we call our natural life, but is a free and conscious taking-over of the natural and the perfecting of it according to our reason and conscience. Started on our way though we are by our natural instincts, appetites and passions, yet we gradually reach a condition in the development of our intelligence and self-consciousness, where we feel we have something to say about our conduct, and thus that we are entrusted to some degree with our own interests, and the interests of others. It is simply impossible for a person as he reaches this age of accountability not to feel a sense of obligation, that is, to impose duty

upon himself to act, according to his knowledge, for the best interests of himself and others.

Reality of our moral life apart from religion.—

It is often felt that the reality of our moral nature and its demands is dependent upon religion or the acceptance of religious beliefs; that, if for any reason we feel uncertain about our religious beliefs, we are justified also in questioning the reality of the demands of our moral nature. It is very important for us to see, however, that the existence and reality of our moral nature wait not at all on the acceptance of any religious belief. Whatever may be our religious beliefs, or even though we have none, still the demands of our moral nature play an actual part in our lives every day. It is true, of course, as we shall see, that there is a very close relation between our moral and religious natures; that the facts of our moral nature lead naturally to religious beliefs; and that belief in God and a future life are required to justify many of the demands of the moral nature; and that there is a great question about the extent to which moral demands would be obeyed without the support of such religious beliefs. And yet we should recognize that it is as utterly foolish to suppose we can ignore the moral demands in our life and escape a penalty of pain and unhappiness, as to suppose we can ignore the physical demands of our nature and escape the appropriate penalty.

What true morality means.—In the Appendix we have something further to say about our moral life, especially as to its relation to our religious life, but it may be well to make a little more sure at this point that we understand what true morality means. "Morality" is a term often used to designate outward conformity to moral or religious principle, through custom, fear of punishment or hope of re-

ward, and without the sanction of the heart or the will. This kind of "morality" is condemned alike by religion and by moralists. No act can be counted morally good unless it has a good will back of it. Likewise we must distinguish between true morality or moral life and what we know as moral qualities, such as industry, frugality, temperance, etc. These qualities might be exhibited by a thief or by a person in the pursuit of any evil end. Such qualities are indeed required in any fully developed moral life, but with no good will back of them they would clearly have no true moral value. Still, while no act or life is morally good until inspired by a good will, there can be much gain in getting persons to act, even in the absence of good will, in accordance with the right. The reason is that such action may lay a foundation upon which moral obedience may later be built.

5. Religious life.—Fifth, we have a religious nature, a religious life. Universally it has been found that men hold to some religion. A fairly good working definition of religion is, "Religion is man's belief in a being or beings mightier than himself and inaccessible to his senses but not indifferent to his actions, with the feelings and practices which flow from such belief."

The development of man's religious belief.—Men's ideas or theories about these unseen beings and his relations to them have been various. For instance, among barbarous and uncivilized people we find a belief in many, often innumerable gods—not only a god of the sun, and of the moon, of the sea, of fire, and of wind, but gods of streams, of trees, of plants, etc. As man has advanced intellectually and morally, there has been a constant tendency to-

ward belief in one ever-living God, a purely spiritual Being, infinite in power, wisdom and goodness. Implicated with this belief has been also the belief in man's immortality. Accordingly, in the light of religious belief our human life takes on an infinite significance.¹

We have now completed in a rough way an answer to the question, "What is the nature of this life of ours which we are here to develop?" We have seen that ours is not only a physical life, not only an intellectual life, but also an æsthetic life, a moral life, and a religious life. And that the purpose of our existence here, therefore, must mean the fullest possible development of all these sides of our being.

OUR LIFE TO BE DEVELOPED HARMONIOUSLY

A fact that possibly should be emphasized in this connection is, that this purpose of our existence here (which means also our happiness), can be attained only in so far as there is a *harmonious* development of these different sides of our life. The person who develops his body and neglects his intellect and heart confines himself mainly to a lower order of life—mere animal life. Indeed, through insufficiency of knowledge and through unrestrained appetites and passions, he is sure to break laws of his physical nature and so fall far short of the greatest pleasure possible even in his physical life. If a person develops the intellect alone, he is open to such fallacies as selfishness and atheism; if he develops his moral and religious nature alone, he will be a sentimentalist or a fanatic. If he sacrifices the body for the mind and heart, then he tends to destroy himself. Our great possibilities of happiness can be realized then,

¹ See APPENDIX II, page 264.

only in so far as our whole personality, including our physical, mental, æsthetic, moral and religious natures, is brought to full, harmonious development.

OUR HAPPINESS IN PROPORTION TO THE AMOUNT OF OUR LIFE

Another fact, probably more in need of emphasis in this connection, is that we shall make progress toward the perfection of our life, and our happiness, only as we increase the *amount* of our life. There is no happiness in stupor, unconsciousness, death. Happiness is possible only with life, and life, we are to remember, always means activity. So the more complete the development or the greater perfection of our being, means, fundamentally, greater or more intense activity along all the sides of our life. The more fully we develop our physical nature, the more physical life we have, the greater are our capabilities not only of the pleasure made possible by this kind of activity, but also of the pleasures that result from our higher activities. The more we increase our intellectual activity the more we widen our interests, increase our knowledge, the more we develop the power to think, reason and understand, by so much also are our capabilities of happiness increased. As our moral nature is developed, as our sense of good and evil is quickened, as our will is strengthened to choose and do the right and avoid the wrong, as our sympathies are broadened and deepened, as our capacity for love is increased, new and ever wider fields of happiness are opened up to us. As our religious nature is developed, as our faith in God becomes more sure and definite, as our consciousness of our relationship to Him is intensified, happiness is more and more attained.

HAPPINESS VS. PLEASURE

Distinction between happiness and pleasures.—

Now we want to ask more specifically what we mean by "happiness." We have seen that the true end of our existence here is harmonious development of our whole being, and that happiness comes to us progressively along with such development. But between happiness of this sort and what are ordinarily called "pleasures," a wide distinction is to be made. Or, in other words, as we all know, unrestrained indulgence in any or all kinds of pleasure will *not* make for our *happiness*. Nature has decreed that pleasure shall follow action and activity, but not all activity promotes the perfection of our being as a whole. For instance, we find pleasure in eating; but if to obtain pleasure of this kind we eat more than our body requires or only what is most pleasing to our taste, rather than what is best suited to our needs, then we soon lessen our capacity not only for this kind of pleasure but for other pleasures as well, and besides we suffer pain. Instead of promoting the highest development of our being we have lessened it, and so this particular activity (with the pleasure accompanying it) leads necessarily to a diminution of our happiness. "Pleasure, then, without bounds, without choice, without foresight; pleasure taken by chance and according to the impulse of the moment, pleasure sought and enjoyed under any form in which it may present itself . . . pleasure thus understood destroys itself; for experience teaches that it is followed by pain and is transformed into pain." Man, as we have seen, has the power of rising above the impulses of the moment and viewing his life as

a whole. Evidently it is only by exercising this power, and looking to his permanent good, that he can find a standard by which he may distinguish between false and true, transitory and stable pleasures.

Pleasures differ in quality.—Furthermore, we are to see not only that some pleasures are to be sacrificed often or enjoyed only in moderation, but also, in the second place, “that nature has decreed that each of our faculties, the highest as well as the lowest, shall have its own peculiar pleasure by the very fact of being exercised. Here we are introduced to the fact that pleasures differ not only in quantity and intensity, durability and purity or freedom from pain, but also in *quality*.”

First of all, man is an animal, and so there are many pleasures which he has in common with animals, the pleasures resulting from the activities of his animal life, the satisfying of his animal appetites, etc. But man is capable of far higher orders of pleasure than are open to mere animals. Man has his intellectual, æsthetic, moral and religious natures, and these mean faculties more elevated than animal appetites. In the exercise and development of these faculties, the higher orders of pleasure are found. Even the ancient Epicureans considered mental pleasure superior to the physical. But as we go beyond the intellectual or the æsthetic to the activities of our moral natures, even higher happiness is found. “The noblest action gives the noblest pleasure.” Finally, however, as we have seen, complete happiness can be obtained only through belief in a Supreme Being of wisdom and goodness, and in so far as we have a consciousness of right relationship to Him.

Important bearing on life.—We have reached now one of the most practical facts to consider about this life we are here to develop. By due reference to

it, light is thrown on many problems. For instance, we are enabled to understand better the widely varying aims of people and to judge better of their worth. The man who gives his time to a sensual life, to the satisfying of his appetites and passions, finds pleasure; there is no question about that. But the trouble is that it is a lower order of pleasure than he is capable of, and besides, it leads to pain. The man who gives himself up to his greed of selfish possession, or to selfish ambition of any kind, finds pleasure surely, but the trouble is that it too is a lower order of pleasure than he is capable of. Besides, it leads to pain. Indeed, we can say the mistake usually made is not in thinking too much of happiness in connection with the end of life, but in mistaking or choosing false for true happiness. We waste a large portion of our lives striving for the lower pleasures that never have satisfied, and never can satisfy a human being — pleasures which, from our very nature, never can mean true happiness.

Vast differences in the happiness of people.— There could be no greater mistake than to suppose that life holds about an equal amount of happiness and pain for all men, that it is about equally satisfying or unsatisfying for all. There is undoubtedly less difference than we realize in the bodily satisfactions that can result to men, because of differences in their external conditions or possessions. But, because of varying conditions within, there are truly infinite differences in the satisfaction and happiness that different people know. This fact cannot be brought out too clearly. Who, after surrendering to his lower self, living for his animal desires and selfish interests, has come in contact with a life filled with enthusiasm for great enterprises for the good of men — who has not felt at such times how vast and real are the dif-

ferences in life? It is unquestionably true that man is capable of peace and happiness that passeth understanding right here in this life. It is his natural right. It is only a question of the extent to which he is able to fulfill all the laws, but especially the higher laws, of his nature. Then the kingdom of heaven which is within us does come, as Christ said it should, here on earth, though, of course, what might be called ideal or perfect life, or uninterrupted and complete happiness, cannot be expected here. That would require an ideal environment. Such features of our present life as bodily and mental decay, death and bereavement, make what we could consider ideal life impossible. Nevertheless, present conditions unquestionably make possible the development of character, and also the deepest (though not constant) happiness.¹

It is wise now for us to glance back over the ground traversed in this Part II. We have seen that the chief purpose of our existence in this world is the fullest possible development of our whole life, physical, intellectual, æsthetic, moral and religious, that true happiness is the natural accompaniment of this increasing development; that our capabilities of happiness depend upon the harmonious development of our life, and are also in proportion to the amount of life we have; that true happiness is to be distinguished from what we ordinarily mean by mere pleasure, and that pleasures differ in *quality*; that the satisfactions resulting from our intellectual and æsthetic life are of a higher order than mere bodily satisfactions; and that in the activities of our moral and religious life the highest and only final satisfaction is found.

¹ See APPENDIX III, page 272.

WHAT ARE THE VARIOUS NEEDS OF OUR LIFE

With this general view of our life, we are ready to take up one of the questions with which we started, page 168, namely, What are the various needs of our life? With a fairly definite idea as to the different orders of our needs, we can then proceed to inquire about what is required to satisfy these needs, that is, what we must consider as the true necessities of life. Then we shall ask whether what is made possible by the stereograph travel system we have described really falls under these heads.

We have physical needs.—First of all, inasmuch as we have a physical body and an animal life, it necessarily follows that we must have certain definite physical wants or absolute physical needs. To supply these needs certain orders of things are required, or certain “physical necessities,” that is, food, clothing and shelter, together with certain natural conditions such as air and light. They cannot be dispensed with if our life is to be sustained and developed.

We also have intellectual, æsthetic, moral and religious needs.—But, as we have seen, man is more than an animal. He is endowed with life infinitely above that of animals. All that makes human life really worth living is in these higher realms, the realms opened up to him by his intellectual, æsthetic, moral and religious natures. Consequently it necessarily follows that man must have other needs than those of animals, needs resulting from these higher natures, upon the fulfillment or non-fulfillment of which man’s real happiness or misery depends. Universal experience has made this fact clear. Provide an animal with food and bodily comfort and

he is content. Provide for all the wants of man's animal nature and he is far from content, far from happy. "New wants of the spiritual nature come thick and fast upon one another as soon as the coarser necessities of existence are fully supplied."

History and experience show that the higher are more vital than the lower.—We all recognize that our physical needs are real needs, that, if they are not supplied, if physical laws are broken, physical weakness and disease follow; and physical weakness and disease mean pain, suffering and death. But we could not make a greater mistake than to fail to realize that even greater suffering comes to us because of the unsatisfied needs, the broken laws, of our intellectual, moral and religious natures. Indeed, history has shown over and over again that the demands of our higher natures are even stronger, more vital and compelling, than the demands of the body. Men have faced all kinds of hardship and danger, have endured cold and hunger, and laid down their lives in unnumbered thousands for truth and freedom. Again and again men have found that life became flat and stale and unendurable when their moral perceptions have been benumbed, when the demands of their moral nature have been ignored. There is no suffering of body that men have not been willing to endure to alleviate the stings of conscience, and the utmost sacrifices have been made on account of religious faith. In response to these demands of their higher nature, men have ever insisted on sacrificing themselves for family, for country, for truth, for God. "Out of this has come the bulk of what gives worth to human history. If we should subtract all that is due to the conviction that it is 'perdition to be safe' when for the truth or for one's country one ought to die, it would not be worth while to write the rest."

Higher needs not felt equally at all periods in life.—It is well to note further in regard to these demands of our higher natures that they are not felt with equal intensity in all the periods of life. Children up to the age of twelve ordinarily ask of life comparatively few deep intellectual, moral or religious questions. They are chiefly the creatures of animal wants and mental impressions. Their attention is mainly absorbed by the things about them. "The child looks without rather than within; at the near rather than the remote; at the present rather than the future." "At about the age of twelve a great change begins. With the physical development into manhood or womanhood come profound transformations of the mental, moral and religious natures. The intellect is quickened, the sense of the beautiful is quickened, the conscience is quickened. He no longer takes himself or the world for granted. He becomes self-conscious, bashful, introspective, critical." "The childish 'Why' which used to be asked out of playful curiosity, has now given place to a serious questioning upon which the issues of life and death appear to hang, and because the 'Why' of life does not respond to his insistent pleadings he becomes puzzled, possibly impatient with life itself. 'Why was I born? What am I here for?' he asks in torturing uncertainty. Because his power to ask questions exceeds his wisdom to answer, the absolute mystery of being presses down upon his spirit as if to crush it." "He becomes a dreamer enamored of ideals and ravished with ambitions." ¹

By careful inquiry it has been found that there are three special periods in the developing years of our life when these questions and demands of our higher natures are especially felt—at twelve and thirteen,

¹ George A. Coe, "The Spiritual Life," chapter I.

sixteen and seventeen and around twenty. These few thoughts gathered from Professor Coe's book emphasize to us how our happiness even in childhood and early youth is vitally affected by wants no animal ever knows.

Higher needs not felt equally at all times in adult life.—Furthermore, it is important for us to understand that these wants of our higher natures are not felt in our adult life with equal intensity from day to day. There are many days when to make sure of the provision for our bodily needs seems to be the one supreme and practical end of our exertions. But, just as surely, other days and hours come when the things of the body and even the things of the mind are, we know, powerless to satisfy us. As Emerson puts it:—"There is a difference between one and another hour of life, in their authority and subsequent effect. Our faith comes in moments, our vice is habitual. Yet there is a depth in those brief moments, which constrains us to ascribe more reality to them than to all other experiences." It is only at these times of special insight that we become fully conscious of our higher needs that must be attended to if we are to find real happiness. How foolish for us not to look for and give heed to these periods of higher consciousness! How constantly we make mistakes right here! What erroneous ideas are all about us. "The world is filled with the proverbs and winkings of a base prudence, which is devotion to matter as if we had no other faculties than the palate, the nose, the touch, the eyes and the ear, a prudence which . . . asks but one question of any project—will it bake bread? But culture (self-realization) revealing the high origin of the apparent world and aiming at the perfection of man as the end, degrades everything else, as health and bodily life, into means."

Emerson of course does not mean here that bodily life and health are to be neglected, but that it is utterly foolish to think of our bodily life as anything more than the foundation, upon which the chief structure of our life—our intellectual, æsthetic, moral and religious life—is to be built. We need a good foundation. A poor foundation may wreck a building; but still the foundation alone, however good, cannot serve as a building; we must build above the foundation.

In other words, Emerson means in what we have quoted, that, even though during the vast majority of our hours we are conscious mainly of the wants of our physical nature, still we are not to lose sight of the fact, made clear to us in our better moments, that it is the wants of our higher nature that have most to do with our life and our happiness. He means, that, even though the world all around us may be filled with a base prudence that is ever taking account only of the lower wants, still we ought to keep in view that the progressive perfection of the whole of our being is the purpose of life.

If higher needs are unsatisfied, unhappiness is inevitable.—Finally then, we cannot see too clearly the nature of the choice put before us. The choice is not whether we shall seek for the means of satisfying our bodily wants with the immediate pleasures thus brought to us, or seek for the means of satisfying the wants and keeping the laws of our higher natures with the higher satisfactions and happiness thus brought to us. The choice we have to make is not thus between a lower and a higher order of happiness. The choice we must make rather is between higher happiness and pain. It is not open to anyone to say, that, though higher happiness would be open to him by going on to keep the laws of his higher nature, yet he is pretty well satisfied with the pleas-

ures he now enjoys and hence chooses to stay where he is. For, just as supplying the wants and keeping the laws of our higher nature opens up higher and wider fields of enjoyment than we gain by merely supplying the wants and keeping the laws of our physical nature, so the failure to supply the wants and keep the laws of our higher natures brings us into worse loss and suffering than the failure to supply physical wants and to keep physical laws. Just as the noblest pleasure comes from the noblest action, so the worst pains comes from broken moral and spiritual laws. In other words, we cannot live as mere animals even if we would be willing to. We are born as human beings, and we must go on to higher happiness than any animal can ever know, or we must suffer pain that no animal can ever know.

OUR TRUE NECESSITIES INCLUDE MORE THAN PHYSICAL NECESSITIES

Uselessness of satisfying physical needs only.—

What is the use, then, of calling up the butcher, the clothier and the builder, of going through all these years of work to care for our physical life? What is the use even of laying up money or of winning a certain fame among men, if in doing these things we neglect to supply the needs, if we break or fail to keep the laws of our higher nature?

Other than physical necessities.—We might as well face the fact soon as late, that we have a complex, many-sided nature and many different orders of needs, and that we can attain the purpose of our existence here only in so far as we supply all these needs. Thus we reach the point where we can see that we must extend the range of what we are to consider the "necessities" of life. If we were animals, merely, with physical well-being as the end of our

existence, then food, clothing and shelter would be the only necessities of life. But as we are human beings with vastly higher natures, and with the harmonious development of our whole being as the end of our life, then it is clear that we must consider other things than food, clothing, shelter, etc., among the necessities, in the sense that without them we could not hope to make the greatest progress toward the one end for which we are here.

Greater importance of higher necessities.—Indeed, if we really care for happiness then we must see the truly supreme importance of finding out about and supplying the “necessities” for our higher natures. There is really no alternative open to us. As pointed out, we must either attain to higher happiness than any animal is capable of, by keeping the laws of our higher nature, or, by not keeping these laws we break them, and we sink to pain and misery which no animal is capable of experiencing. We must either rise above the animal or we sink below the animal. If we satisfy our physical demands only, and fail to satisfy the higher demands, we might better never have been born. Thus we see, not only that we must make provision for other than physical needs, but also that the provision for these other needs is the more important.

Higher usually include lower but generally sacrificed for lower.—Of course it is true that usually the higher includes the lower. In striving to provide for his physical needs and the physical needs of others, man is led to exercise and develop his intellect in some degree. And, inasmuch as the life of the mind and spirit are reached only through the co-working of the physical, the development and care of the body as well as the mind is a moral and religious duty. Therefore efforts put forth to supply physical and mental

needs can mean a development to some degree at least of the moral and religious natures; and, besides, under certain circumstances physical claims may take precedence over more exclusively moral and religious ones. However, when a real conflict of duty occurs, the wisest and best in all the ages have agreed that the lower is to be sacrificed to the higher. As a matter of fact, though, the prevailing tendency to-day is, as we have seen, for people to neglect the demands of their higher natures, in seeking to provide for their physical needs. Indeed, the general practice is to provide for the physical far beyond what is really needed.

If we see now the truly supreme importance of our intellectual, æsthetic, moral and religious life, we still have to ask what is required to supply the needs and provide the conditions for the fullest development of these higher sides of our life. If we could reach, approximately at least, an answer to this question, then we should be in a position to decide how important a means such a stereograph travel system as we have described can be in supplying these needs and providing these conditions.

CAN HIGHER REQUIREMENTS OF LIFE BE KNOWN BY THE MASS OF MEN?

Is knowledge of higher sides of life too abtruse for most people? — But isn't it impossible for the great mass of men to know about the requirements for the development of their intellectual, æsthetic, moral and religious natures, let alone being able to provide them? Undoubtedly the sciences dealing with these sides of our nature and their needs have been pretty well worked out, and are now being taught at least in a theoretical way in colleges and universities. But isn't knowledge of this kind so difficult

and abstruse that only college professors, learned ministers and bishops, and a comparatively small class of specially trained people, can possess it? There is no question but that so far this knowledge has remained mainly in the hands of the few. The millions of people whose living makes up the greater life of humanity, into whose hands is given the infinite task of rearing millions of children, have been without this knowledge or the means of scientifically applying it in their lives. Are the differences in the natural capacities of men such that this must always be so?

Men's natural capacity far beyond knowledge possessed.—An increasing number of authorities hold that in savage and civilized countries alike the *capacity for knowledge* is far in advance of the knowledge possessed. As Dr. Ward points out in his "Dynamic Sociology," the differences in the natural capacity of the great mass of people are much less than is ordinarily supposed. The number who rise above the great average standard of natural ability is insignificant, as is the number who fall below this standard. It is true of course that there are immense differences in the *intelligence* of people in different classes of society, but, as Dr. Ward reminds us,¹ intelligence means natural capacity plus information or knowledge. Certainly only a little observation is needed to see that there is a great inequality in the distribution of knowledge. It is easy to see therefore how the vast differences in intelligence can be explained by the enormously disproportionate amount of knowledge that is supplied.

The long delay in men's material progress due to ignorance.—The evils that have resulted and are resulting from this unequal distribution of knowledge can scarcely be overestimated. They cannot be em-

¹ Lester Ward, "Dynamic Sociology," Vol. II, page 475.

phasized too often. "Why was it," Horace Mann asks, speaking of man's slow development along material lines, "that men learned the courses of the stars and the revolutions of the planets before they found how to make a good wagon wheel? Why was it that they built the Parthenon and the Colosseum before they found how to build a comfortable, healthful, dwelling-house? Why did they excel in poetry and oratory before they invented movable type? Because the labor of the world was performed by ignorant men, by men doomed to ignorance from one generation to another, by the bondman and captive of ancient times, and the serfs and slaves of more modern times." With the spread of even the rudiments of education among the masses of the people who were dealing with nature in a serious, practical way in earning their livelihood, the observation and scientific study of nature with the discovery of their forces and their laws naturally followed. Thus also came the Stevensons, the Watts, the Fultons, the Edisons, to *apply* this knowledge to the use of man—to show man how these great forces and principles of nature could be utilized in performing his work. By this application of more intelligence to man's physical environment, this wonderful age of material progress resulted, as we pointed out in Chapter VI. Undreamed-of achievements were thus made possible to man.

Lack of knowledge prevents progress also along higher lines.—Now, as we also pointed out in Chapter VI, and as we have seen in the preceding pages the great need is for like advances of humanity along intellectual, moral, and religious lines. Unquestionably, the fundamental condition for this advance is a far wider distribution of knowledge about the nature and about the needs of the higher sides of man, and

the knowledge of available means for satisfying these needs. Certainly we have hardly thought as yet of the achievements open to humanity, when knowledge as to the requirements for intellectual, moral and religious development and of the means fitted to provide for these requirements is brought to the mass of men.

We want now to see whether enough knowledge cannot be given in regard to our intellectual, æsthetic, moral and religious natures, that is within the grasp of the ordinary person, so that he *can* understand what are at least the fundamental conditions and requirements for the development of these sides of his nature. We want to see at least whether enough knowledge can be given along these lines to enable the ordinary man to judge of the importance of the stereograph travel system we have been studying, as a means of providing these fundamental conditions and requirements for the development of the higher sides of his own life, as well as the lives of the multitude.

We shall start with the intellect.

THE FUNDAMENTAL CONDITIONS FOR THE DEVELOPMENT OF THE INTELLECT

Sense impressions the raw material out of which mental life is built up.—The mental life of the new-born child is practically dormant. At once, however, impressions are conveyed to his brain, the “seat of consciousness,” through the various senses — touch, taste, smell, hearing and sight. Gradually these impressions stir the mental life to activity; in response to them the mind reacts with a dim consciousness. Light, for instance, from the various persons and objects around, falls upon the babe’s eyes, and he slowly wakes to a consciousness of their presence. Now these impressions of things, sent in to the brain through the various senses, are known as *sensations*. One of the first things for us to do is to see the primary importance of these sensations. They may be called the food by which all our mental life is nourished — the raw material out of which all our knowledge is elaborated.

Process of working up sensations:—I. Differentiation.—As these impressions of the various objects about the babe are conveyed to his mind, some will stand out more prominently than others in his dim consciousness, and this means that as a result he will give more attention to these objects. This *attention* is the first act of the mind in reacting upon or working upon the raw material of sensations. As a result of this greater attention to some objects, the babe soon commences to distinguish between objects, to notice differences between them. Thus he comes to be conscious of his mother, not only apart from the non-living things with which he has to do, but also

distinguished from his father or other persons. This may be called the first real step or stage in the process of working up the raw material of sensations — distinguishing differences between the sensations, or, as he interprets it, differences between the objects from which he receives the sensations. This stage is known as *Differentiation*.

2. Assimilation.— Another stage is *Assimilation*. This means that the child soon comes to notice a similarity in some of the sensations that come to him, or in the objects which produce the sensations. This probably appears first in recognizing a sensation of taste, for instance, as like one previously experienced.

3. Association.— The third stage in the process of working-up the raw material of sensations is *Association*. By this is meant a sense of relationship existing between several sensations, perhaps of different kinds, which occur at the same time or in immediate succession. Thus, for instance, the different sensations that a child receives from one and the same object, as the *sight* and *taste* of milk, become associated as one complex sensation. When a number of sensations have been thus associated together, the next time one of the sensations is experienced it tends to call up the others, as when the sight of milk reminds the child of its taste.

Comparison with the process of working up food in the body.— These three stages in the process of making-over the raw material of sensations — *Differentiation*, *Assimilation*, and *Association* — may be compared to the three stages in the process by which food is made over and built up in our body. First come mastication and digestion by which the various foods are broken up and the different elements in them separated; then comes assimilation, by which like elements are selected out and taken up by ap-

propriate organs; finally these elements are all recombined in new ways — associated — in the various parts of our body.

This process known as perception and gives percepts.— The stages which we have just been describing, by which a mass of sensations are differentiated, assimilated, and associated, form the first real process, an absolutely necessary process, in the development of our intellectual life. This process is known as *Perception*. The name given to a product of this process is a *percept*. That is, when a child has reached the stage at which it has welded together certain sensations of *taste*, *touch* and *sight* into a thing which it calls “the milk,” it has a *percept*.

Memory or reproductive imagination.— Now these percepts or ideas of things are made up, as we have seen, out of sensations or direct impressions on our senses, of things actually about us. It is evident, that, if these objects are taken away from us, if for any reason they cease making impressions upon us, we shall have no “percepts” of them. Clearly, then, if we are to have anything which we can call permanent ideas of things, or knowledge, something besides percepts is necessary. This brings us to that activity of our mind known as *Memory*. Not only does the child come to be able to *see* milk, to have a percept of milk, when it is before him, but he comes to be able, when the milk is taken out of his sight, to remember how it looked, to call up an image of it in his mind. This act of memory, this recalling of an image of an object after it has been taken away, is popularly described as a revival or reproduction of the original impression or percept which was based on immediate sensations. Of course, we are to remember that there are great differences between these memory images

of things and our actual percepts of them — between the reproduced mental picture of a person, and our actual sight of the person, as we pointed out on page 142. Yet if it were not for our memory — this faculty of retaining some image of a thing, after we had seen it, or touched it — if everything taken out of the immediate reach of our senses were out of mind, it is clear that our mental life would be of comparatively little use to us.

This activity of our mental life, known as *Memory*, is often spoken of as *Reproductive Imagination*, as pointed out on page 141. We imagine an object as a picture, that is, we form an image of it in the mind, when the object is no longer present to our senses. Such images can, however, be only copies of impressions or sensations we have actually had.

Imagination or productive imagination.— Now in addition to this activity of the mind, Reproductive Imagination or Memory, there is, as referred to also on page 141, what is called *Productive Imagination*. This activity, more commonly known as *Imagination*, means more than a mere revival of past impressions of things. When, for example, we try to picture what we have never seen — Tokio, the battle of Gettysburg, etc.—it is evident that we must go beyond our actual experiences. We have to select from such images (gotten from pictures, descriptions, etc.), as our memory may hold, and our imagination modifies, changes, and recombines them. These images are thus built up by the imagination in new ways.

However, we are to note especially that this form of mental activity is limited strictly by the extent of our previous actual experiences. The imagination can only work-over the percepts which we have already received by way of our senses. It is

impossible for it to work-up an *entirely new* creation. "The greatest imaginative genius would strive in vain to perceive a wholly new color."

Thinking:—one aspect is analysis or abstraction.—So far we have not reached that activity of our mental life known as *thinking*, or those products of thinking known as *thoughts*. To perceive, to remember, to imagine—the processes we have been considering—have reference to some particular object, as the Mississippi river, or a particular occurrence, as the inauguration of President Taft in 1909, in its concrete fullness, as it presents itself or would present itself to our senses. But we begin the process of thinking, in regard to such an object or occurrence, only when we go on to give our attention to and reflect upon *some one attribute* or *aspect* of these e. g., the movement or width of the river, or the dignity of the ceremony. This fixing of our attention upon, or separating out for special consideration, certain attributes or aspects of concrete things, is one of the aspects of thinking. This aspect (which corresponds to Differentiation in the process of Perception) is often called *Analysis*, that is, the taking apart of what is presented as one whole. It is also called *Abstraction*, the withdrawal of our attention from the object as a whole or from those parts for the moment irrelevant, and confining it to one particular point, feature or quality.

The following may make this more clear. Some pages back we saw how the child, through the process of Perception, comes to be aware of, to perceive, some of the objects about him, as his father. But, for a time thereafter, every man he sees is likely to be "da-da" to him. Now by means of the process of thinking, just described, he takes a step by which he is able to know one particular man from another.

This he does by noticing some of the features or aspects of each man; one has a beard, another has not, etc. Thus, as he becomes aware of the individual characteristics of men, he is able to distinguish between them.

Another aspect is synthesis or comparison.— Another aspect of thinking is known as *Synthesis*, or *Comparison*. By this process we pass on from noticing features that distinguish men, for instance, from one another, to noticing some of the features which all men have in common—characteristics of dress, face, hair, voice, etc., that make them different from women, animals or other classes of objects.

These aspects constitute conception and give concepts.— By these two activities of thought, separation and combination, analysis and comparison—the child comes to have general notions or general ideas, as “man,” “dog,”—ideas that stand, not for any particular dog nor any particular man, but for those characteristics which are common to all men, or all dogs. All of us are aware (when we think about it) that when the word “man” is suggested to us we do not think of any definite individual as John Smith, or Arthur Jones, but, in a vague way, of man in general, man as a class of beings. Such general notions or ideas are known as *Concepts*; and the process of forming such general notions is called *Conception*.

By the formation of these general ideas a person becomes able to classify things in his mind. This is of great practical value. We are surrounded by such an infinite number of objects, that, if we always had to take accounts of each object by itself, if we could not classify things in our minds, we should become hopelessly confused and lost in the unsystematized mass of mental facts we possess.

Three stages in thinking — conception, judgment

and reasoning.—Generally three stages are distinguished in the *thinking* process. First, what we have just been describing, the formation of the general ideas or concepts, as “man,” “dog,” “tree,” etc. This, as we have said, is known as *Conception*. Next comes the combination of these concepts into the form of a statement or proposition, as when we say, “Man is an animal.” This is known as an act of *Judgment*. Lastly, we have the operation by which we pass from certain statements or judgments to certain other statements or judgments, as when, from the statements, “All men are mortal,” “John is a man,” we pass to the further statement, “John is mortal.” This process is known as *Reasoning*, or drawing an inference or conclusion.

We have outlined now the chief activities of our intellectual life. It is these very activities that constitute our intellectual life from childhood to old age. Hundreds and thousands of objects of knowledge are brought before our minds. We form “percepts” of them, “analyse” their qualities or attributes, and then arrange them into classes according to their varied relations of likeness and unlikeness. The mind hates a lot of unrelated ideas as nature hates a vacuum. It immediately strives, as each new object or process is presented, to understand it, that is, to analyse its qualities and then to see to what classes of objects or processes already known it can be related. It may be said that the capacity and power of our intellectual life are in proportion to our ability to take note of many objects and facts, observe their likenesses and unlikenesses, and thus see the various relations existing between them. It may also be said that the amount of knowledge or truth we possess will consist in the extent of the objects and facts which we know

and the relations between them which we have observed.

Conditions for intellectual development:— 1.

Sense impressions.—Now we are ready to ask, What are the conditions, at least the fundamental conditions, for the awakening and development of our intellectual life and the possession of knowledge? The first condition evidently is *contact through our senses with actual objects or concrete things*. As pointed out on page 200, *sensations*, or the impressions of things brought into our minds through our senses, are to our intellectual life what food is to our bodies, or raw material to manufactured goods. It would be as foolish to expect our minds to grow and keep vigorous and strong without this supply of impressions of things from without, as to expect our bodies to grow and be strong without a supply of food, or a cotton mill to produce cloth without a supply of cotton. Says an educator, "It cannot be too often urged upon those who carry on the work of education that the mind is nourished and enriched through its receiving an abundance of concrete impressions. Minds must be brought in contact with realities. A dozen pedagogical maxims enforce this truth. *The mind cannot grow upon itself. It must be fed. We cannot think unless we have things to think about.* Hence the modern condemnation of 'book learning,' 'rote teaching,' 'words before ideas,' 'signs without the things signified,' and so on."

2. A wide range of sensations—the principle of comparison.—The second fundamental condition for the development of our intellect, and the possession of truth, is that the mind shall react upon or work-up these sensations into true percepts and concepts of things. But we are to see that a necessary

condition for this activity of the mind is that we have a *wide range of sensations* — contact with a wide range of things. That is, we have to do here with the great principle that we can come to know an object, the truth concerning it, only as we know other objects with which to compare it. On page 204 we saw that we do not reach the activity of our mental life known as *thinking* until we give our attention to particular features of things. In this way we are enabled to recognize the respects in which things differ from each other, and also the features which certain things may have in common, thus giving us our general ideas. Now the very condition that wakes the mind to this *thought* activity is the *comparison* of things. As we have the opportunity to compare one thing with another, we have our attention directed to the characteristics in which they differ, and hence the characteristics or qualities that are individual to each. As the baby sees other men besides his father, he gradually notices differences between them and thus notices the characteristics individual to his father. Thus he comes to really know his father. Until he has come to notice these individual characteristics of his father he doesn't really know him.

"As long as we view a particular object, or event, alone, apart from other things, we merely *apprehend* it. But when we bring it in relation to kindred things we *comprehend* it."¹ "It is an undeniable fact that we cannot know anything whatever except as contrasted with something else. The contrast may be bold or sharp, or it may dwindle into a slight discrimination, but it must be there. If the figures on your canvas are indistinguishable from the background, there is surely no picture to be seen. Some element of unlikeness, some germ of antagonism,

¹ John Fiske, "Through Nature to God," page 34.

some chance for discrimination, is essential to every act of knowing. . . . It is not a superficial but a fundamental truth, that if there were no color but red it would be exactly the same thing as if there were no color at all. In a world of unqualified redness, our state of mind in regard to color would be precisely like our state of mind in the present world with regard to the pressure of the atmosphere if we were always to stay in one place. We are always bearing up against the burden of this deep aerial ocean, nearly fifteen pounds upon every square inch of our bodies; but until we get a chance to discriminate, as by climbing a mountain, we are quite unconscious of this heavy pressure. In the same way, if we knew but one color, we should know no color. If our ears were to be filled with one monotonous roar of Niagara, unbroken by alien sounds, the effect upon consciousness would be absolute silence. If our palates had never come into contact with any tasteful thing save sugar, we should know no more of sweetness than of bitterness."

Comparison a necessary condition for possession of truth in every line.—Says Hamilton W. Mabie, under the heading, "Liberation from One's Time," "To get even a glimpse of the character and meaning of our own time, we must see it in relation to all time; to master it in any sense we must set it in its true historical relations."¹ Under the heading, "Liberation from One's Place," he says, "To know one's neighbors and to be on good terms with the community in which one lives is the beginning of sound relations to the world at large; but one never knows his village in any real sense until he knows the world."² Says President E. Benjamin Andrews,

¹ "Books and Culture," page 191.

² Same work, page 195.

“No one knows even his own country who knows his own country alone. To appreciate our geography, our institutions, our productions, our virtues, our sins, or our prospects, we need to compare these with corresponding aspects of civilization abroad, and comparisons through reading, however thorough and exact, amount to little. One must himself behold varieties of scenery and custom, etc., witness the working of governmental and social systems differing from our own.” Said a lady on returning to her home in an inland city, after a visit to New York, “My! How small the buildings look! I never thought of them as small before.” The fact is that opportunities for wide observation and comparison are a necessary condition for the ascertainment of truth on every subject bearing on our lives — material, industrial, social, political, moral and religious.

Opportunities for comparison a need for all men. — We should see too that this opportunity for wide observation and comparison is a need for *all men*. A man's work may be fairly simple, requiring for its performance no elaborate knowledge, but every man is involved in a complex tissue of relations. The commonest laborer is a son, probably a brother and a husband and father; he is a neighbor, a citizen of his local town, of his state and nation, probably a member of special organizations — labor unions, church, etc., and certainly a representative of the human race with relations to the race as a whole. Undoubtedly the larger part of his happiness and well-being will depend upon the ideals he holds as to these relations, and on the extent to which he lives up to these ideals. Certainly the well-being and happiness of many others more immediately about him must depend to a considerable degree on the way he fulfils these relations; not only that, but we are seeing more and more that

the good of society as a whole is involved to some degree in the life of each individual.

We have not only traced the chief processes of intellectual life, but also certain fundamental and necessary conditions that must be provided if we are to reach anything like what is possible in the development of our intellectual life, and in the possession of truth. The very first condition is actual *contact through our senses with things themselves*. The second condition is contact with *the widest possible range of things and facts* in all lines—"an abundance of first-hand impressions." The necessities for the full development of the body might be found in a comparatively small area, though as a matter of fact we do draw on the products of many lands. But we must search the whole world and past times to provide the necessities for anything approaching the full development of our intellect and the possession of truth.

Furthermore, in so far as these conditions are provided, intellectual development is sure. In so far as they are not provided, the intellectual life is dwarfed and limited, no matter what effort is put forth.

The necessary part the stereograph travel system must play.—We ought now to be in a position to judge of the need, with relation to the race's intellectual development, of such a system of travel in connection with the stereoscope and stereograph as has been outlined. As we saw in Chapter VI, the millions are confined, so far as actual contact through their senses is concerned, within a very small part of the world. Perfection of railroads and steamships has made travel a possibility for many, but still it is, and must continue to be, utterly impossible for the

millions to travel very much in this way. In Chapter VII we noted the insufficiency of language as a means of giving the millions a wide environment. Thus we see that the very conditions which we have found necessary for intellectual development are such as it has been impossible for the mass of men to provide for themselves or their children. By means of the travel system based on the stereoscope and the stereograph, however, the mass of men *can* be given a wide environment, may be taken out into all the world. Evidently some such system is absolutely necessary, if the fundamental conditions for intellectual development and the possession of truth are to be provided for the millions.

THE FUNDAMENTAL CONDITIONS FOR THE DEVELOPMENT OF THE ÆSTHETIC NATURE

As to our æsthetic or beauty-loving nature, and the conditions for its development, only a brief comment shall be made here. We have already had something to say about our sense of the beautiful or the ideal (page 11), and the large and important part it plays in our lives (Appendix, page 261). From what has already been said, it could easily be inferred that two fundamental conditions for the development of this part of our life are the contemplation of beautiful things and the effort to produce them. In a recent address President Eliot said that the best place to stir an appreciation of the beautiful is in the schoolroom. One can hardly forbear to quote his vigorous statement on this subject. "After reading, spelling, writing, and ciphering with small numbers and in simple operations, drawing should be the most important common subject. All children should learn how straight lines and curves and lights and shades form pictures and may be made to express symmetry and beauty. All children should acquire, by use of the pencil and brush, power of observation and exactness in copying, and should learn through their own work what the elements of beauty are. It is monstrous that the common school should give much time to compound-numbers, bank-discount, and stenography, and little time to drawing. It is monstrous that the school which prepares for college should give four or five hours a week for two years to Greek and no time at all to drawing." But apart from the schoolroom the opportunities for the development of our appreciation of the beautiful are very large indeed. Within the

wider and almost infinite range of the beautiful often mentioned are the heavens with its sun, moon and stars, sunrise and sunset, clouds, sun and rain; the landscape with its innumerable forms of beauty, flowers, architecture, painting, etc. Much that is beautiful is within the reach of all, but still the vast proportion of the world's resources of beauty is within the reach of only the few. It is easy to see, as stated on page 15, that the stereograph can be of great service in putting the millions in touch with the larger resources of the world's beauty.

FUNDAMENTAL CONDITIONS FOR THE DEVELOPMENT OF THE MORAL NATURE

Great importance of knowing these conditions.—

We cannot remember too steadily nor emphasize too strongly the fact, already pointed out, that, even though we should provide for the needs of our physical, intellectual and æsthetic natures, but in doing so neglected or wilfully ignored the demands of our moral natures, we could not hope for happiness really worth the name. Indeed, our failure here, as we have seen, must always mean suffering worse than any animal knows. It is, therefore, of the highest importance to us that we know at least the fundamental conditions required for the development of our moral nature. We want to see at any rate whether we cannot reach sufficiently definite conclusions about these conditions to enable us to judge of the possible value of the stereoscope and stereograph in connection with moral development.

General feeling that law of cause and effect does not hold in moral field.—At the very beginning we should recognize that it is in this very field that people in general feel that no conditions exist that will guarantee results. In the world of physical nature we feel sure to-day that law reigns; that, for instance, the law of cause and effect invariably holds. Under the same conditions we feel sure certain results always follow certain causes. If we plant corn in accordance with certain conditions, we are sure corn will grow. The more completely these conditions are fulfilled, the more corn and the better corn we shall get. But, when we enter the field of the moral life, most people are by no means sure that everything transpires ac-

according to definite laws — that under the same conditions certain results always follow the same causes.

General observation inclines us to this view.—

Indeed, we do now and then see several children growing up in the same family, under the same influences, and becoming widely different in their lives; one becomes a villain, another a saint. While such extreme instances as this may be infrequent, observation often inclines us to believe that, even though the law of cause and effect may hold in the moral field in a general way, yet the exceptions are so numerous we can never be sure that efforts we put forth will be at all certain to count toward the results we desire; even the very opposite results might occur.

Results of such observation misleading.— More careful thinking, however, leads to the conclusion that we are not justified because of these seeming exceptions, in concluding that the law of cause and effect does not hold in our moral life. In the physical world, we know it is only when conditions are the same, or similar within certain limits, that we can expect a certain cause to bring about a certain effect; with some changes in the conditions, the effect can be brought about only by means of a much greater cause, or not at all. Now as we comprehend more and more the vast complexity and variation in the forces contributed by heredity and environment that operate in determining the life of each person, unknown even to himself and certainly to others, it is but natural to expect that there would be vast differences in the outcome of different lives, though they grow up under *apparently* the same external conditions.

The popular notion of free will leads to this view.

— Another consideration, that leads many to suppose the realm of our moral life is not a field offering sure return for effort, is the theory of our “free will,” as

popularly held. By the possession of this power of individual free choice, we are often told that people may resist all the good influences brought to bear upon them by their fellows; that they may even resist the will of God. This would seem to make any thought of sure return for effort in the moral field utterly hopeless. But the trouble here is that we so often misunderstand this "freedom" which we ascribe to men, as well as the use men make of it. We have already seen in Chapter VI that this freedom does not mean that we have absolute power—that we have come into existence of ourselves, or that we can continue in existence independently of our surroundings. We saw how limited was the extent of our free effort—merely the power to hold one idea a little longer than another before the mind—and that for these very ideas we were dependent upon our contact with the world about us.

But men do not use their freedom in a lawless way.—But in this connection the important thing for us to see is, that the possession of this "freedom" by rational beings does not mean that they will make a lawless or insane use of it. Perhaps we can get at the matter in this way. If men believe that this is a rational universe at all, if they believe it is ruled over by a good and rational Being, then, first, they must believe that the highest and best course, or the course of duty, is also the safest and wisest course. Then, second, it must follow that every rational being (and of course only in so far as a being is rational can he be morally responsible) will always choose, according to his knowledge, the highest and best or the course of duty, that is, what is safest and wisest for him, rather than the opposite, *provided such a choice is just as easy, or easier*. Any other choice would be unthinkable for a rational being. Any per-

son who would act differently under the conditions named would be insane.

Three reasons why men do not always choose the highest.—Next, then, we can say that whenever a person (who believes this is a rational universe) fails to choose the highest and best, or the course of duty, it must be due either, first, to lack of knowledge as to what the highest and best is — the lack of moral insight; or, second, to the fact that, though the highest is known and the person desires to do it, the appeal of the evil is too strong; or, third, to the fact that, though the highest is known, the appeal of the lower is stronger than the person is willing to resist, though he has at the time the power to do so.

Can't know amount of free effort possible to men, nor extent to which they will utilize it.—Speaking first of the acts falling under the third head, no finite being can say what measure of good will another should have, nor how much effort he can or ought to put forth in striving toward the good. No one can even know this definitely for himself. Consequently, no finite being can tell how much the progress of mankind toward ideal life is delayed because of men's failure to measure up to what is possible to them. But this uncertainty about the amount of good will men may have, and about the amount of effort they can or will put forth in accordance with it, *does not mean that the law of cause and effect holds less in the moral sphere than in the realm of plant-life, for instance.*

The law of cause and effect holds in moral realm as much as in plant realm.—The operation of the law of cause and effect in the plant world means no more than that, under any given set of conditions, the plant life will develop along the line of least resistance. It ought to be clear, from what we have

seen above, that this law holds just as fully in the lives of beings endowed with free will. The additional fact about man is, that he has a certain measure of free effort which it is possible for him to add to what we may call the normal operation of the law of cause and effect. The extent to which any individual *will* use the free effort possible to him in striving toward the best cannot be known. But we can know that no person will use his measure of freedom to choose the wrong when it is just as easy to follow the right, or that he will use his freedom to add to the appeal of the wrong when that appeal is stronger. It is true then that while we cannot know how much men may add to the normal action of the law of cause and effect, still we do know they will not hinder such action.

Two conditions of moral development:—1. Knowledge of the good.—We are thus in a position to see that there are vast fields in the realm of moral life where returns for effort can be counted on as surely as in the plant realm. We see what these fields are, when we remember that people fail to choose the course of duty, not only because they are unwilling to put forth such effort as may be in their power, but also because of lack of knowledge as to what the highest and best is, and because the appeal of the evil is too strong. The deeper one's own experience and the wider his acquaintance with men, the clearer it becomes that a vast part of the conduct of the world that falls below the moral ideal, with all the evils, wrongs, outrages and suffering resulting from it, is due either to ignorance of the right or to a too strong appeal of the evil. With these facts in mind, as well as the principle stated above—namely, that every person will always choose, according to his knowledge, the highest and best, rather than the opposite, pro-

vided such a choice is just as easy — then it becomes clear that (presupposing the person's belief in the rationality of the universe or a belief in a God of justice and goodness) conditions are provided for positive and certain moral growth and advancement whenever, first, a person's knowledge of the highest and best is increased; and, second, whenever the appeal of the good is strengthened and the appeal of the evil is lessened by bringing the good nearer and pushing the evil farther away. In other words, we find here what we may call the two fundamental conditions (apart from faith in the universe or religious faith) of moral development — knowledge of the right, and increase in the appeal of the good, with decrease in the appeal of the evil.

Fallacies that obscure importance of knowledge of the good.—Taking up, first, the question of increased moral insight or knowledge of the right, we should speak of two fallacies that help to explain why men have been so woefully backward in realizing the great importance and the duty of seeking by every possible means to know the highest and best for themselves, and of spreading this knowledge to others.

a. Fallacy that conscience is infallible.—One of these fallacies is the notion that every person has within himself, in his conscience, an infallible oracle of truth and goodness. This fallacy has been pretty well exploded to-day in many quarters, but still it is unquestionably true that exaggerated and mistaken ideas about conscience form one of the greatest stumbling-blocks in the way of moral progress. It cannot be too clearly seen that all we have in the beginning is a capacity to know right from wrong. For a long time we have only a crude sense of right and goodness; in fact, this holds true to a large degree throughout life. Our sense of the beautiful needs to

be developed and refined and this is true of conscience likewise. We are never justified in settling down content with merely the light we may have.

b. Fallacy that good will or good intention is sufficient.—Another fallacy that has done much to keep people from realizing the great importance and the duty of seeking to know for themselves what the best is, and of extending this knowledge to others, is the notion that all the moral law requires of a person is that he have a good will or that his intentions be good. Only a little thinking ought to be needed to show the absurdity of this. It is true, of course, that the good will is the center of the moral personality. Without good will no act can have moral worth at all. But, on the other hand, it is easy to see that in this world our duty cannot be done as long as we stop with good intentions or good will merely. In the first place, the good will must *will something*; and it naturally follows that there is need to know that this something is good.

Our great need for knowledge about the good.—What, then, is this good that we should will, or toward which we should aim? We have already seen that this is not a simple question. On page 170 we pointed out what many believe is the purpose of our present life—the full normal development of the whole personality. We have seen also that no one could hope to make much progress toward the development possible to himself, if he should grow up apart from humanity or if he lived apart from his fellows as a hermit. We found too that one of the deepest demands of our nature requires consideration of others. In other words, we saw that the good toward which our wills are to aim is well-being for ourselves and others. With such an aim for the good will, we see

the more we reflect upon it, how comprehensive must be the aim of our moral life. It includes all sides of our life. "It is our duty to help, so far as we can, whatever ministers to the enlargement and enrichment of life; and it is our duty to refrain from, and prevent so far as may be, whatever hinders the largest and fullest life, whether for ourselves or others." The more this subject is considered the more evident becomes man's need for enlightenment about the good he is to seek.

We need knowledge of the way to attain the good.—But not only do we need *right* aims rather than merely good intentions, but also, in the second place, it is evident that if we are to make progress toward these aims we must act. Accordingly it should also be clear, that, if this action is to lead to the realization of these aims (the well-being of ourselves or others), it must be in accord with the laws under which we live, the laws of our own natures, the laws of the physical and social world around us. Illustrations will at once make this plain. A child might have not only a thoroughly good intention, but also a proper object in view, when he puts his hand on a hot stove; but, through ignorance of the world of reality about him and his own body, his act does not lead to his well-being, but rather to his injury and suffering. A person might not only be acting from good motives, but also he might have right objects in view, and yet through ignorance of the right methods or means he would fail to attain these objects and might do harm.

Formal and material rightness of moral action.—Moral action, then, we see, has two sides: one has to do with the intention of the person performing the action, the other with the practical or beneficial outcome of the action. When an act springs from per-

fectly good intentions or motives, it is called *formally* right; when it is in accord with the laws of reality about us it is called *materially* right. "The ideal of conduct demands both formal and material rightness. As long as either is lacking, the outcome is imperfect." It is this need for material rightness in moral action that not only justifies but makes it a duty for man to seek knowledge in every sphere. Ignorance, narrowness and dullness must ever be hindrances and curses.

Certainly all must agree then that one of the *fundamental conditions for moral development is knowledge of the right* — that the moral insight be enlightened as to what is the chief good or the ideal life for man, and that knowledge be gained as to the right courses of action in working toward it.

Second condition of moral development — increase of appeal of the good.— But, even though people do know what the chief good is that they should seek, even though they do know of right courses of action leading toward this good, yet this knowledge does not insure their acting upon it. All of us know better than we do. This brings us to the second and third reasons referred to on page 218, why people fail to choose the highest and best — that is, because evil either makes an overwhelming appeal, or a stronger appeal than they are willing to resist. This brings us also to the second of the two conditions for moral development referred to on page 219. Anything — we then said — that could lessen the appeal of evil for a person, and increase the appeal of good, must result in his moral advance, in further action in accordance with the good known. What now can be said about the means of fulfillment of this condition?

a. Non-moral agencies.— First, we should take account of what are called non-moral agencies. As we have been pointing out, our moral life is not some-

thing apart from what we call our natural life, but is a free and conscious taking-over of the natural, and the perfecting of it according to our reason and conscience. All of us are thus started on our way by our natural instincts, appetites and passions. Later we assume control, either to aid or hinder the development that begins automatically. But not only do all start from this non-moral, natural basis, but their lives are all along influenced toward self-development by many motives that are non-moral. The child is urged on toward right action by rewards and punishment. Likewise all sorts of hire and salary and external restraints operate on people in greater or less degree throughout life. The importance and value of all these non-moral incentives to right action lie in the fact that they lay the foundation, upon which action from true moral motives can be built. "This use of lower motives, while the susceptibility for the higher motives is being developed, is a fundamental fact in human life. . . . The art of education and legislation consists very largely in the direction of non-moral motives into right forms of action, in advance of moral development."¹ First of all then we are to take account of these great non-moral forces and means that make for moral action and moral life.

b. Moral forces, or virtue.—But, of course, we recognize, as intimated above, that we attain to truly moral action and moral life only in so far as we come to a conscious, willing choice of the better—that our acts are moral acts only as we do good and refrain from evil, not from mere impulse or necessity or fear alone, but also from our own choice and as the result of our own effort. Only in so far as we reach this point, can we feel any moral worth within or approach the possibilities of our moral development.

¹ Borden P. Bowne, "Principles of Ethics," page 179.

The question remains then, Where can we find a source of power by which we can be led both to approve, and to realize in action, more of the good we do know? Simple as the answer may seem at first, yet the chief source of this power is to be found in the good deeds and the good lives of others; that is, in the expression or embodiment of good will in actual concrete life in the world. Noble acts, virtuous lives are moral forces, sources of moral power.

We all recognize that vice, the evil act of an evil will, influences men to evil action. No one disputes the truth expressed in Pope's verse:

Vice is a monster of so frightful mien,
As to be hated, needs but to be seen,
But seen too oft, familiar with her face,
We first endure, then pity, then embrace.

Generally admitted as is this truth, as to the power of evil action to lead to other evil action, still we are far from realizing all this truth stands for — the vastness of these forces for evil and the extent of their actual working among the lives of men.

But we are even much farther from realizing the truth that virtuous deeds are also forces — forces equally effective in their power to lead to other virtuous deeds. We might well continue Pope's verse as follows:

Virtue's an angel of most beauteous mien,
But to be loved needs oft to be seen;
And seen full oft, familiar with her face,
We soon admire, then long for, then embrace.

We can say that it is under the influence of ideas and ideals that individuals act. The dynamic force behind all conditions and movements of society is found to be the response of individuals to ideals. No understanding of history is possible without taking

account of these subtle spiritual forces that find their expression through personality. "We can understand the countless action of the countless individuals that make up history only from the point of view of these forces which are creative behind them." Thus we understand how it can be that "*the forces of history are more and more gathered up, not in abstract tendencies or principles, but in the individuals that form humanity.*" Here then we find the vast and exhaustless reservoirs of power that can enable men to act on the good they know. In so far as we put ourselves in touch with the best deeds, the best lives, we are not only enlightened as to what the best is, but stirred with impulses that lead us on to act more in accordance with the best we see.

The truth should be emphasized in this connection that we do not escape the evil simply by striving against it, but *by putting ourselves under the influence of the good.* "To conquer any evil desire or tendency, we need to cultivate a noble one. We bring light into a room not by closing the blinds to the darkness but by letting the light in." This principle is so important that we may well quote again Drummond's statements already given in Chapter VI in regard to it. "Obvious as it ought to seem, this may be to some a *startling revelation.* The change we have been striving after is not to be produced by any mere *striving after*; it is to be wrought upon us by the moulding of hands beyond our own. As the branch ascends, and the bud bursts, and the fruit reddens under the co-operation of the outside air, so man rises to the higher stature under invisible pressures from without. . . . Every man's character remains as it is, or continues in the direction in which it is going, until it is compelled by impressed forces to change that state. Our *failure has been*

the failure to put ourselves in the way of the impressed forces." The forces here referred to by Drummond are, as he points out, the forces of character — the forces to be found in the highest lives.

A supremely important truth is that we need to keep looking at virtue, or the best in life, if anything like its full force is to be exerted upon us. There is a common feeling that we need only to look at the good now and then; but the law is that we are to give the best *continually* a chance at us. Neither need we fear that the good will not have sufficient interest for man through familiarity with its expression. "No single expression of human nature exhausts the whole. Its infinite possibilities may be imagined in God, but are never realized in any man or group of men. It is this which gives the exhaustless interest in life; each phase embodies some hitherto unexpressed potentiality, and its peculiar lesson is not adequately taught by any other."¹

Finally, then, we have found the fundamental conditions (apart from religious faith, or faith in the natural order of things, before referred to) which are absolutely necessary for moral awakening and growth: first, knowledge of what the good and true or the highest is, and second, association with the highest. It is absolutely certain that moral growth will follow, in so far as these conditions are fulfilled.

This brings us to the point where we can judge of the importance for man's moral development, of what a stereograph travel system can give. We have already seen on page 154 the wide knowledge of things made possible by such a system, and further that this is fundamentally important for the development of our intellectual nature and for the possession of truth. Now we have seen, page 220, that such knowledge

¹ See APPENDIX IV, page 282,

of the truth is one of the necessary requirements for the development of our moral natures. Then on page 165 we saw that only by means of such a stereograph travel system can the millions be put in touch with the places all over the world, where the best deeds have been done and the best lives have been lived, and that this is the surest guarantee that these millions would come to know such lives and deeds. Now we have just seen that this very knowledge of the best lives and deeds is another necessary requirement for the development of our moral life.

FUNDAMENTAL CONDITIONS FOR THE DEVELOPMENT OF THE RELIGIOUS LIFE

Incompleteness of life apart from religion.— But, finally, we must remember that, even with all man's efforts to fulfill the demands of his moral nature — that is, to know and do the best — still he finds no final, complete happiness. In fact, the higher man mounts up toward the best, the greater are the possibilities that open up before him. The more he seeks final satisfaction through his own efforts, the more he becomes conscious of how much he has not attained, and hence of his own unworthiness. Not only is he haunted by visions of goodness that make impossible all self-complacent satisfaction, but also, through his conscious failures to do what he might do, he is burdened with a sense of guilt and sin.

Universality of religion.— Indeed, it is through these experiences of his moral nature in part that man is led to feel the need of, and to the belief in a God of infinite righteousness and goodness. Thus for this and other reasons, such as are mentioned in the Appendix, Note III, we find that the great mass of men have always been believers in supernatural beings, have felt that anything like completeness of life and happiness can be hoped for only by the help of and through right relations with such beings.

Apparent conflict between the laws holding in the religious and other fields.— Yet here, more than in connection with any other side of their lives, men are puzzled with questions that seem insoluble, and mysteries that are unfathomable. Here it often seems that we enter a supernatural field, controlled by a system of laws very different from, or even in con-

tradition to, those which apply to our lives in the natural sphere. Taking up the Christian religion, the fundamental conceptions of this faith as usually stated, are: that by sin man has become estranged from God; that man of himself cannot put right what his misconduct has put wrong; that a mediator is needed to bring about the reconciliation of God and man, and that this is accomplished through the person and work of Christ. Various names are applied to this work of Christ, such as salvation, redemption, propitiation, reconciliation, though the name more commonly used is the atonement. But various statements are made about this atonement. For instance, sometimes we are told that through this atonement or salvation we are saved, not because of any merit we may have, but because of the merit of Christ; or that we are saved by grace, or by faith; that we are not saved by any "good works" or "mere morality" of our own. In the light of such statements as these it often seems, as we have said, that in the religious sphere the laws holding in our moral and natural life are relaxed — that the very laws of effort and righteousness are nullified.

The theories vs. the fact of the atonement.— Further and more careful consideration, however, leads to the conclusion that there is no essential conflict between the laws holding in the religious and the other fields of our lives. To make this clear, we must, first of all, distinguish very definitely between the *fact* of an atonement and the various *theories about it*. Thus, while millions can be agreed as to the fact of an atonement, there is no general agreement as to the theory of it. Indeed, it is now generally recognized that in the past many crude and misleading, though well-meant, theories of the atonement have been put forth — theories that conflicted with each

other, that were inconsistent in themselves and contrary to our moral reason.

The rise of some of these theories resulted from an attempt to interpret the language of Scripture too literally. As has often been pointed out, it is very difficult to speak of the atonement in any but metaphorical or symbolic language, as it is also of many other facts in the religious realm. For instance, God is spoken of in the Bible as the shadow of a great rock in a weary land, as a dwelling place, as covering His saints with His feathers. All these statements are literally false, and mutually contradictory, and yet we can see how all, if not taken literally, can be used to express in some measure the idea of God. So the Bible writers, according to the customs of their times, used various language to describe the atonement. If man's sin be thought of as guilt that demands propitiation and expiation, there has been one supreme sacrifice. If sin be thought of as a debt, it is paid. If it is thought of as slavery, man is redeemed or ransomed. If our guilt is thought of and our unworthiness, we are clothed with the righteousness of Christ.

The Standard Dictionary sums up the different theories of the atonement as follows:

"The theories by which theologians attempt to explain the facts of the atonement are mainly three: (1) the *sacrificial*, that the atonement consists fundamentally in Christ's sacrifice for man's sins; (2) the *remedial*, that God, through the incarnation, entered into humanity so as to eliminate sin by the ethical process of Christ's life and death, and make the human race at one with himself; (3) the *Socinian*, moral influence—that Christ's work consists in influencing men to lead better lives. The *sacrificial* theory takes two general forms: (a) the *governmental*, that Christ's work was intended to meet the demands of the law of God and make such a moral impression upon men in favor of the divine govern-

ment as to render the forgiveness of man safe; (b) the *satisfaction*, that it was intended to satisfy divine justice and make the forgiveness of man possible and right. Manifold shades of opinion are gathered under these various theories."

It is not difficult to see, that, when some of these theories are followed out to their logical conclusion, they make it appear that there is no real forgiveness on the part of the Father — that He is simply satisfied on the payment of the debt. Indeed, such theories make the love of God for man the result of the atonement, whereas the New Testament represents the atonement as the result of God's love. "For God so loved the world that he gave his only begotten Son that whosoever believeth in him should not perish but have everlasting life." Besides, it would appear that if Christ has paid the debt or satisfied the demands of justice, nothing can be required of man for his sin. Otherwise it would mean that double payment was to be exacted for the sin.

According to the governmental theory, God Himself, as a moral being, needs no propitiation for sin that He may be reconciled to man, but, as ruler of the universe, He must uphold the law of justice. Hence atonement must be made. This theory arose mainly, it is generally conceded, through the influence of certain political ideas. God was compared to some absolute earthly monarch, the type of ruler present to men's minds at the time when the theory was elaborated. According to the scriptures, however, God is portrayed as our Heavenly Father.

It thus becomes more and more clear, as some have pointed out, that our only hope of getting any conception of the case which will not revolt the moral reason lies in replacing the conception of the Divine government by that of the Divine family. "Instead, then, of a Divine Ruler anxious mainly for his own

claims and laws, we have a Divine Father in the midst of his human family, bearing with his children and seeking by all the discipline of love and law to build them into likeness to and fellowship with himself.”¹

What we can be sure of about the atonement — God’s method of saving man.—Turning aside then from the theories as to our relationship to God, let us take note of what we can feel sure of. In the first place, we can be sure, whatever our faith, Catholic or Protestant, Christian or Jew, that God is our Father, and that provision has been made whereby we can escape from our guilt and sin and attain unto right relations with God our Father, with all the fullness of life and happiness we naturally desire. In the second place, we can be sure that the one condition which must be fulfilled on man’s part, if this reconciliation is to take place, is that he become righteous. Certainly, “if God is to forgive unrighteous men, some way must be found of making them righteous.” This God Himself cannot forego. He will be at infinite pains to save men *from* sin, but he cannot save men *in* sin. To forgive wicked men while they remained wicked would be immoral. But what is the method by which man becomes righteous? This clearly is true repentance and reformation. But how are men to be led to repentance, or how, after they repent, are they to do the right? This brings us to what we can feel sure is the main truth about God’s method of making men righteous—that is, by the revelation of Himself, the revelation of His hatred of sin and yet His love and long suffering for man. This revelation, the world more and more agrees, has been supremely manifested in Christ. According to Paul (II Corinthians v, 19), “God was in

¹ Borden P. Bowne, “The Atonement,” page 67.

Christ reconciling the world unto Himself " and Christ Himself said (John xii, 32), " And I, if I be lifted up from the earth, will draw all men unto me." Even those who do not believe in the pre-existence or Deity of Christ recognize in Him the highest revelation of the Divine, and therefore the greatest power for the moral and religious upbuilding of men. On the other hand, those who do believe in his Deity should remember that all goodness is God's goodness, and hence that goodness and virtue by whomsoever shown is a revelation of God. Every one who has a good impulse and does a truly good deed is in so far living the Christlike, divine life, and in so far is helping to save himself and others.

Apparent conflict between religious and moral laws explained.—We have now reached a point where we can consider some of the familiar statements in regard to our religious life referred to on page 230, and see that they in no way conflict with the laws we have found to hold in the rest of our life—laws requiring personal effort and good will. First, take St. Paul's statement, " By *grace* are we saved through faith." This means that our salvation spiritually is not of ourselves, in much the sense that we do not live physically of ourselves. By no mere effort of our own alone could we become possessed of physical life or preserve it. In the truest and widest sense, we have nothing which has not been given us; we are dependent continuously for our life and all our powers and for the means of preserving them. So spiritually, also, it can be said that even if we had kept all the commandments we should be unprofitable servants. " And when to this we add our record of unfaithfulness, waywardness and wickedness, we see that we are not only unprofitable servants, but sinners also, whose only hope must lie in the Divine

grace. The best men in their best moments have felt most clearly their final dependence upon God."

Then St. Paul said that we are saved "through faith." But St. Paul did not mean by this that we are saved by mere intellectual assent to any doctrine. St. James sharply criticised such an idea by saying the devils have this faith. "Thou believest that God is one; thou doest well: the devils also believe and tremble." The faith St. Paul had in mind goes beyond mere intellectual assent to any doctrine or creed, to a moral act which includes trust, submission and obedience. Only as all this is included in faith do we have "saving" faith. It means belief in the goodness and mercy of God, submission to Him, and struggle toward Him.

Next, in regard to the disparagement of "good works" or "mere morality." What is meant here are mechanical good works—the mere performance of rites and ceremonies without any inner loyalty and devotion of the heart. Such mere external conformity to outward law and custom is spiritually worthless. But it is different with true morality. The supreme condition of true morality is the loyalty of the heart and will to righteousness, and it cannot be too clearly seen that without such good works there can be no salvation.

The deeper reason for apparent conflicts between moral and religious demands.—It is important, however, that we note finally that probably the deeper reason, which explains the rise of these apparent conflicts between the laws holding in the moral and religious spheres, is, as Bowne points out,¹ the failure to keep apart in our minds the point of view of the ethical side of our life, which is based on our freedom, and the point of view of our religious life,

¹ "The Atonement," page 144.

which is based on our dependence. Thus either the moral sense or the religious sense may be violated. Our religious sense, in its feeling of reverence and dependence, would ascribe everything good to God, and feels as irreverent any assumption of merit on the part of man. But our moral nature, in its experience of freedom and responsibility, insists on vindicating a place for virtue and merit in ourselves also. The former by itself would find its limit in a powerless passivity, which would cancel humanity altogether. The latter by itself would easily pass into Pharisaism and spiritual pride. In the failure to keep in mind both of these points of view, we find the explanation for the many one-sided statements about the worthlessness of human virtue. It is necessary, however, that we should never deny the reality and need of human virtue on the one hand, nor fall into a shallow spiritual pride and self-conceit on the other. The religious nature, in its sense of dependence and reverence, will always delight in viewing all our virtues and graces as the gift of God. But the moral will must ever exert itself and thus attain to some measure of goodness and virtue.

Certainly there is nothing in the Christian religion to show that we are released from the inexorable law of righteousness. There is nothing in the Christian Atonement to free men from the need of being righteous, but rather it reveals such truth, beauty and goodness as make it possible for men to become righteous. According to the Christian idea, Christ gave expression to the character of God and illustrated what man was intended to become. The conclusion from this is clear.

“This fact that God and man are both revealed in one life is so important as to deserve special attention here. If it is possible for one life to express

God and man at once, then we are right in saying that God and the normal man are morally alike; character means the same in God and in man; words of moral significance have the same meaning in the two realms of application; moral standards are the same in both; goodness and virtue are identical in the two, with only such difference as difference in field of action makes. This is a most important fact for us to know. If good and evil were one thing with man and another with God, we could have no certainty in morals; but the appearing of the real character of God and the right character for man in one life proves that there is no uncertainty here. Christ is the living proof of the singleness of the moral standard. By expressing true Divinity and normal humanity in one, Christ has borne witness to the necessary and eternal quality of morality, and laid ethical foundations that can never be removed.”¹

One fact true of the different sides of our life, and the analogous conditions for their development.—But perhaps we can get a more practical idea as to the nature and the development of our religious life, of our consciousness of God, if we note one fundamental fact that holds alike for the intellectual, æsthetic, moral and religious sides of our life, as well as the analogy that exists with relation to the conditions of their development. Starting with the intellectual nature, let us think of the action of our intellect in connection with our sense of sight.

According to the first law of vision, which we took up on page 29, we found that what we “see” at any time are external images — images which are formed in our eyes of what is before us and which we refer out again and (mentally) place as nearly as possible on the objects from which they are reflected. Much

¹ Clark, “*Outlines of Christian Theology*,” page 309.

more was said in Chapter IV in explanation of the process of seeing. Here we want only to emphasize that what each person sees at any time may be called a *reflection of his knowledge*. As we open our eyes, the images of objects formed in our eyes recall to our consciousness what we know of these objects, and what we then "see" is a reflection of this state of our mind in regard to them. Images of things are formed in the eyes of a young child as in the eyes of an adult, but they stir very different states of mind, and so he sees or interprets them very differently. There are also great differences in the way adults see or interpret these images. The artist looking at a tree sees its graceful lines and motion. The lumberman sees so much lumber. To the tired and heated traveler it means cool shade and rest. What we have said here about the action of our intellect with relation to our sense of sight holds equally with relation to all our senses. In other words, each is aware of a world without, only as he has built a world within. We thus reach the truth that each builds the world in which he lives. The development of one's intellectual life is really the building of this inner world.

We have already seen what are the more fundamental conditions for the development of our intellectual life. First, sensations or impressions of things brought into our minds through our senses. Second, reaction upon or working-up this raw material of sensations into true conceptions of things. A necessary condition for this action of our intellect we found to be contact through our senses with a wide range of things.

Probably, however, we can bring out the truths we are after more clearly in connection with our æsthetic nature. In the Appendix, Note I, it is said that the beautiful is another name for the ideal, and that there

is a sense of the ideal latent within us; that, in so far as we see qualities in anything that do not harmonize with this ideal within, we call that object ugly, and, in so far as we see qualities in anything that are in harmony with this ideal within, we call it beautiful. That is, when we see an object which appears beautiful to us, it means that it suggests the ideal to us, or in other words, it awakens or quickens this dormant or latent ideal life within. Now what we want to note is, that, in so far as we see beauty in an object at any time, we are in what we may call a "state of beauty." We are in the habit of saying *that* flower, several feet away, or *that* landscape yonder, half a mile away, is beautiful, just as though the beauty we see was *all* external to us, entirely separate from us. But the fact is that all the beauty which *we* see without, is a reflection of the beauty we have within. Of course there are objects outside us, with those characteristics, whatever they may be, that constitute beauty in things; but *we see* only so much of this beauty as has existence within us. Another standing beside us and looking at the same landscape may see no beauty in it; another with a more highly developed sense of the beautiful may see far more beauty than we do. Each sees without only so much as throbs within him.

Now what are the conditions for the development of our sense or inner experience of the beautiful? First of all, by looking upon beautiful things. The more we look upon the beautiful, the more our consciousness of it is awakened. We cannot develop our sense of the beautiful by any mere effort of ourselves. It is the law of reaction again. It is only the beauty which exists in the world without us that can awaken the sense of beauty within. Second, man develops his consciousness of the beautiful by striving

to produce it. We know, (see page 263), that as man looks at things which give him suggestions of the ideal, he longs to give expression to it, to give more adequate expression to it than he sees. This may lead to action in beautifying his surroundings, or if he has creative faculty, in painting, sculpture, etc. But, in whatever direction his action is put forth, it serves to develop his consciousness of the beautiful. The development of man's æsthetic nature depends, then, first, upon his getting in contact with the beautiful; and, second, upon his action in giving expression to the beauty he feels within.

Turning to our moral nature, it can likewise be shown that people interpret the moral world about them according to the moral life they have within. If their own life is evil, they tend to see evil in all; if their own life is good, they see good all about them. Indeed, a person sees only so much goodness without him as he has a consciousness of within.

We have seen also that man begins with a crude sense of good and evil, and that he develops his moral nature, first, by learning to know what the good is, and, second, by trying to act in accordance with the good he knows.

Coming now to our religious life, our knowledge or experience or consciousness of God, we should see two things. First, that the same fact we have found to be true about the other sides of our life holds here also — that is, that we can see God in the world only in so far as we have a life corresponding to His within us. Second, that our knowledge or experience of God is made up of or includes our knowledge or experience of the true, the beautiful and the good.

As to the first fact spoken of, we ordinarily speak of seeing God in nature, or in the world, or in the acts of men, just as though the God we see was ex-

ternal and entirely separate from us. And yet the fact is that all of the Divine that we see without is a reflection of the Divine we have a conception of or consciousness of within us. Another standing beside us and looking at the same world may see no evidence of God; and still another, with a more highly developed religious consciousness, may see God far more than we do. "God is the name for man's highest." This of course does not mean that there is no God in the world and universe apart from men, but it means that men cannot ascribe qualities or attributes to Him of which they have no realization or consciousness within themselves. Thus we find the gods of the savage, the heathen, the semi-civilized, partake of their own crude conceptions of truth and goodness.

The inclusiveness of the religious life.—This brings us to the second fact referred to above, namely, that our religious life, our consciousness of God, is made up of our intellectual, æsthetic and moral life, our knowledge or consciousness of the true, the beautiful and the good. The less truth man possesses, the cruder and more undeveloped his consciousness of beauty and goodness, the more mistaken, cruel and immoral will be his conceptions of God. It is this that gives point to the statement that "An honest God is the noblest work of man."

We have found that our moral life is our natural life, physical, intellectual and æsthetic, raised to the moral plane; and now we see that our religious life includes all. Man's highest religious life means the highest physical life, intellectual life, æsthetic life and moral life—the highest perfection of his whole personality. God is truth, and all truth is His truth. So the more our intellectual life is developed, the more we know or experience of truth, the more

we know or experience of God. All beauty is a manifestation or expression of the perfection of God. Hence the more our sense of the beautiful is developed, the more we know or experience of beauty, the more we know and experience of God. "The impersonal beauty which art incorporates and enjoys is one of the qualities of the Person religion worships." All goodness is God's goodness. The more our consciousness of the good is developed, the more of goodness we know and experience, the more we know and experience of God. "He who finds it in his heart to will the good, can say truly, thus far, 'I and my Father are one.' . . . It is transcendently true that we do not completely know God; that our ignorance is all but total; however, it is gloriously true that we do partially know God in so far as in either others or ourselves or nature we find an iota of truth, but the tattered garment of beauty, or an unfinished deed of goodness."¹

As Christians, we believe, of course, as indicated above, that the object of religion is more than abstract truth, impersonal beauty, or abstract or impersonal goodness. Certainly man feels the need of a personal God of truth, beauty and goodness. It is because of men's belief or faith in the existence of a personal God or personal gods of a higher or lower order, that the various religious rites and ceremonies have grown up. It is almost universally held by those who believe in a personal God or personal gods that they can commune directly with such God or gods through prayer.

Here, then, in the development of this consciousness of a personal God we find the conditions to be followed include those required for the development

¹ See H. H. Horne, "Psychological Principles of Education," Chapter XXIX, The Principles of Religious Education.

of the other sides of our life, as well as some special but analogous conditions. Among the special conditions may be mentioned, first, the gathering together of men in religious associations and meetings that they may stimulate one another's faith, and especially gathering about those who have the most highly developed religious faith or consciousness; and, second, acting upon this faith, giving expression to this consciousness, in the performance of various religious rites and ceremonies, and in prayer.

On page 196, the question was raised whether it was reasonable to suppose that the mass of men can have such knowledge about their intellectual, æsthetic, moral and religious natures, as really to know of the requirements for their development. In the preceding pages we have been considering these higher sides of our life, and their needs and it seems clear that there need be no question in the mind of the ordinary person about the general direction in which he is to move. Mysteries unsolved are all about us, but still we are at least not left in doubt about the fundamental conditions which, if fulfilled, will mean certain development.

In this study we have made of the intellectual, æsthetic and moral sides of our life and the more fundamental conditions for their development, we have seen how impossible it is for the mass of men to fulfill these conditions with the more ordinary means within their reach; and we have also seen of what immense value such a stereograph travel system as has been described may be in making it possible for the millions to fulfill these conditions. Now that we have seen that the intellectual, æsthetic and moral sides of our life are so vital a part of our religious life, we can see that the vast significance of such a system for

these sides of our life means a like service (at least indirectly) for our religious life. We only need to add, that, by widening the environment of the mass of men and thus leading them to a closer acquaintance with the great religious leaders, this travel system can be of great service in more directly developing the religious life of the millions.

This becomes more evident when reference is made to the first-hand knowledge of Bible lands made possible to practically all by such a travel system, not to speak of its use in making possible such knowledge of the various fields of the Church's work in the past and present. There has been a growing recognition of the importance of a knowledge of Bible lands in religious education. As we have seen, men like President Harper have not hesitated to say that the greatest difficulty in the way of an intelligent study of the Bible is the sense of unreality clinging about Bible characters and events, and that the greatest help in overcoming this greatest difficulty is in making Bible lands real. In recognition of this need the Fourth International Sunday School Convention, at great trouble and expense, was held at Jerusalem. And yet what a handful of people could go!

Who can estimate the results that may follow from the intimate knowledge of Bible lands now made possible, not to the few alone but to the millions?

SUMMARY AND CONCLUSION

In Chapter II we considered the three ends for which pictures have been used: (1) as an expression of the beautiful, or the fine-art use; (2) as a substitute for language, or the picture-writing use; and (3) as a means of giving as near as possible the experience of seeing the thing or place itself.

Confining our attention to this third use, we took up the important question—How near can the experience we get from a picture approach to the experience of seeing the thing itself? The first step in reaching an answer to this question we found must be a comparison of the different kinds of pictures, for the purpose of finding which is the best suited for the purpose. In Chapter III we made this comparison, and found that for this purpose the stereograph is the climax of all pictures.

In Chapters IV and V we made a special study of the stereograph and the stereoscope and of the experiences that can be obtained from them when they are used with certain helps. This experience we found to be comparable to that obtained by being carried unconsciously to a place and being permitted to look directly at it. This meant the practical sufficiency of the stereoscope and the stereograph, when thus used, as a means of putting a wide environment within the reach not only of the few but of the millions.

In Chapter VI we considered the tremendous importance of environment in determining the lives of the millions, the narrowness of the present environment of the mass of men, and the great advance that

would result from the widening of their environment.

In Chapter VII we took up language, the one means within the reach of the millions for widening their environment, and saw its insufficiency for this purpose.

In Chapter VIII we noted that the wider environment made possible either by bodily travel or by a stereograph travel system really means — not merely an acquaintance with a greater number of places on the earth, but also and particularly acquaintance with what has occurred, or will occur during one's lifetime, in these places — acquaintance with the best lives, the best deeds, the best thoughts, together with such a stimulation of one's faculties as makes possible a more adequate comprehension of such lives and deeds and thoughts.

This brought us to the question whether such knowledge is to be considered among the necessities of life. Thus, in Part II, we were led to a study of *life itself*, for which environment is sought. We saw that the purpose of our existence here is the gradual development of our whole being, and that happiness is an accompaniment of this development; that our life is not only physical, but also intellectual, æsthetic, moral and religious; that the higher orders of satisfaction or happiness are found in the development of the higher sides of life; that each side of our life has its needs, and that the end of our existence here and our happiness can be attained only in so far as all these needs, but especially the higher needs, are satisfied. With this purpose of our life in view, we saw that among the necessities of life we must count other things besides the means of satisfying our physical needs. Considering the higher sides of our nature, we found that it is only by means of a wide environment that the needs of the intellectual, æsthetic,

moral and religious sides of our nature can be satisfied; and that it is only by the use of the stereograph with such helps as we have described that this wide environment can be made possible for the masses.

In Chapter VI, after considering the stupendous importance of environment and the narrowness of the present environment of the millions, we concluded, that, if people generally could have the benefit of the wide environment which is now possible for the few, we might hope for an advance of humanity along intellectual, moral and religious lines, comparable to that which humanity has made along material lines during the last one hundred and fifty years.

Now in conclusion we want to return to this great question, and consider again the insufficiency of the present environment of the mass of men; the inadequacy of the agencies and means now in use for giving people a wide environment; the part which the stereoscope and the stereograph can play, and then, finally, whether with all that can be done we are justified in hoping for great advances along intellectual, moral and religious lines analogous to those that have been made in the last two centuries in material lines.

Speaking broadly, we may say that the question of the progress and development of humanity is a question of the extent to which each generation can hand over to the succeeding generation what it has received from the past and what it has found out for itself. Indeed, the question includes more than this. It involves that each succeeding generation shall not only receive or experience afresh all that is desirable in the experience of the preceding generation, but also, by an even closer touch with the great stores of the past, through improved means of access to them,

draw even greater benefit from these inexhaustible sources. Further, this question of anything like the fullest possible development of humanity involves the extent to which the accumulated knowledge and experience of the past can be put at the service not merely of a *few* comparatively of each generation, but of *all its members* according to their capacity to receive it.

Turning to actual conditions in the world, only a little observation is needed to show how far each generation has fallen below the actual accomplishment of this truly enormous work. It is clearly a task vastly too great for all the agencies and appliances, or "culture apparatus," in use now, in even the best equipped nations. Taking account of all that is being accomplished by schools and educational institutions of every kind, by churches, by the printing press, by the contact of men in commerce and every form of intercourse, still it remains true, that even in the most civilized nations the multitudes have received but a very small part of what exists for their enlightenment and development.

Undoubtedly some, while recognizing the insufficiency of the "culture apparatus" now in use, would be inclined to emphasize other explanations for the great differences in the enlightenment and development of the individuals in the more civilized nations. One such explanation would be the indifferent or evil wills of people. Nobody who believes in free will can fail to recognize that this must be a great factor in hindering the development of men. But, as we have already seen, in Chapter VI, pp. 121 and 131, and Part II, pp. 217-227, this is by no means the only factor, and besides, the tendency unquestionably is for us to overestimate it. We have found other factors of

truly vast power in hindering the progress of men to be *ignorance of the best* and the *undue influence of evil about them*. After taking account of the factor of the indifferent and evil will, we concluded with Drummond that the *chief reasons* for men's slow progress toward the highest are not the lack of good will, but the lack of knowledge and means to make effective the good will which they have; that there is sufficient good will in men, sufficient desire for the better, to justify us in believing that there would be a marvelous advance if only ignorance could be done away with and the amount of good in men's environment could be sufficiently increased.

Another explanation which many would emphasize, in accounting for the difference in the enlightenment and development of different individuals is the great difference in the natural capacities of men. But we have already seen why we are likely to greatly exaggerate this difference in the natural abilities of men. We have seen, with Ward, that, while there are immense differences in the intelligence of the different classes of society, still intelligence means *natural capacity plus information or knowledge*. Thus Ward, in common with many other authorities, holds that the vast difference in intelligence is explained by the enormously disproportionate amounts of knowledge men receive — that differences in natural capacity are small compared with differences in the amount of information possessed. The more extensive one's survey of society and one's acquaintance with its different classes, the more convinced one is as to the soundness of Ward's position. It becomes more and more plain that there is at present a vast inequality in the distribution of known truth. We are likely to boast of our common school education, forgetting that the common school studies, reading, writing and arith-

metic, are only the tools or the means by which knowledge is to be obtained.

Thus we are brought back to the conclusion reached by so many and already stated, "the unpardonable defectiveness of the present methods of distributing knowledge," the insufficiency of the means now in use for passing on knowledge from the few to the many in each generation, and from each generation to the next one.

If we turn now for a brief survey of the chief agencies now engaged in the above work — the home, the school, the church, the state and all associations of men in commerce and life generally, we can see one reason above all others why they are unable to perform the immense task laid upon them. Only a little thinking is required to show that the chief method by which the work of all of these agencies is accomplished is *personal contact*, one individual acting upon another. It is self-evidently true, of course, that each individual can give to another only so much as he possesses. But, under present conditions, as we have already seen, the knowledge possessed by the vast majority of people is greatly limited. In Chapter VI we saw that the environment of the millions, the part of the world with which they come in direct contact through their senses, is very narrow and small indeed. In Chapter VII we saw that language, the one means now in general use for giving people a wide environment, is entirely inadequate. We saw, that, according to Sully, reading a description of anything means only one hundredth part as much as an actual sense experience of it. Further, we saw that people generally fail to use language to get what it might give. If then what each individual can give to another is limited according to what he himself

possesses, and if the possessions of most people are so meager, then clearly the work of the agencies above referred to, which are made up of individuals, will be limited accordingly.

Evidently the great need is for some means by which avenues can be opened up, not only for the few but *for the multitude*, to the best the world contains. Now it is just such a means that we have found in the stereograph and the stereoscope, together with the maps and other appliances now devised to accompany them. By their use the environment of the mass of men can be made world-wide, the range of their sense-experiences can be enormously widened, — something the use of language cannot secure, and, second, because of this vast extension in the range of their experiences, people would be able to get vastly more of the benefit that language can give (as we saw on page 150). With such a broadening and deepening of the content of life for the millions, it follows naturally that the work of these millions in the various agencies of home and school and church could be made effective to a degree of which we now hardly dream.

But possibly some may be questioning whether, even though ways were opened up for the many to the larger world of the present and past, sufficient resources for intellectual, æsthetic, moral and religious growth could be found to make possible so great an advance along these lines as has been made in the last two hundred years along material lines. To make possible the vast advance of civilized nations along material lines immense resources of physical forces were discovered in the use of coal, steam and electricity, and in the invention of machines for the application of newly available forces. It might

naturally be questioned whether any such vast stores of forces, intellectual, æsthetic, moral and religious, could be found that have been so far unutilized.

No extended answer to this question is possible here, but it is hardly necessary. It ought to be sufficient if we suggest a few facts to remind ourselves of the possibilities of the almost limitless multiplication of such forces, and of their practical inexhaustibility. Take a good life. It can be multiplied in proportion to the number of lives that are brought in contact with it. And moreover it can never be exhausted or grow less by such use. Does a book have value intellectually, morally, or religiously? Then it can be multiplied a million times and the last copy can have all the value of the first. In fact, the value of each book can be increased in proportion as it is used, though such use cannot exhaust such value as it contains. Does a place, Jerusalem for instance, have a certain power to influence people for good? Then we can multiply this power in proportion as people are brought to see it. If we can give the millions access to it we may multiply its power in like ratio.

“As one candle kindleth another and loseth not, so mind kindleth mind.” Every new truth discovered by one may be just so much added wealth for all the rest. Clearly, the world’s accumulation of forces along these higher lines not only can never grow less, but it must ever increase; and, furthermore, it is capable of inconceivable multiplication. Surely whole Niagaras of these higher forces exist which are now unused—unapplied to the lives of men. Surely we must believe such resources exist as would if utilized, result in the transformation of humanity. The great need is for adequate means for bringing these forces to bear on the lives of men generally.

But even though such vast resources for the development of man's higher nature do exist, and even though the travel system as outlined in this book can be so remarkable and necessary a means of putting people in touch with these resources, yet it may be objected that people generally cannot afford to utilize this travel system. It might be held that the struggle for the primary necessities of life is so great, even in the most favored countries, that the mass of the people cannot afford to make any considerable use of such a system.

In reply to this several things are to be considered. In the first place, while it is unquestionably true that there are hundreds of thousands in a country like this that need an increased income, still it is equally true that there are hundreds of thousands who now have more wealth than is likely to be for their best interests. The lesson of history seems to be that wealth has been the chief cause of the decay and overthrow of nations, and it is believed that, improperly or unwisely used, wealth is the greatest danger that threatens the welfare and permanence of our nation to-day. No nation ever had so much wealth, and the only hope of having this serve as a blessing rather than a curse is in transmuting more of it over into the things of the mind and of character.

Furthermore, we know that vast numbers of people are now spending proportionately far more than they need to or ought to on the physical and lower sides of life. Take the great farming class. If it were proposed that fifty or one hundred dollars be spent to broaden and develop the family life, by the use of this travel system, how general would be the response, "O no, we can't afford it. That is not a necessity." And yet on thousands and thousands of farms you will find an extra horse, worth from one to two hun-

dred dollars or more, which is a convenience but by no means a necessity. "What! two hundred dollars for the means of putting myself and family in closest touch with the most important parts of the earth, past and present? I couldn't think of it." And yet on hundreds of thousands of farms from \$500 to \$1,000 more than is necessary has been put into a house, a house far larger than is used, except at the most infrequent intervals. And this is but typical of excessive expenditure along many lines and among many classes of people. As Wagner says, "People generally are saving on the higher and spending on the lower, when they should save more on the lower and spend more on the higher." When we remember that the purpose of man's existence here is the development of life, and especially life above the physical, then we see that the masses simply cannot afford to make the mistake of saving unduly on the higher and spending unnecessarily on the lower. The rich may be careless about their expenditures along the lower sides of life without putting higher development out of their reach, but people of limited means cannot afford to spend unnecessarily on the lower needs, since in their own case it must result to just that degree in a lack of provision for the development of the higher sides of life — the one end they are here to attain.

Finally, some may say that no matter what people *ought* to do and *could* do, even for their own highest interests, still it would be foolish to expect them to readjust their lives materially in this respect, and to save more on the lower and spend more on the higher. The mass of men have always lived mainly for the lower things and they probably always will.

But further thought will show that because the

masses have been spending so unreasonably large a proportion of their substance along material lines is no sufficient reason for thinking they will always continue to do so. In fact, the tendency is undoubtedly to blame people unduly in this respect. When we stop to think about it, we can see that as society is organized to-day the great majority of people are earning their livelihood in manufacturing and bringing to people things along the material side of life, and circumstances all combine to direct their habitual thoughts to material needs. As we pass through a business street in any town or city, or as we read a newspaper, what do we see on every side? Why, the most attractive possible displays or descriptions of things for the physical side of life, clothing, food and drink, house furnishings, necessities and luxuries for the body. Think of the millions of dollars spent in putting one new breakfast food on the market!

Some further reflection shows plainly enough why society naturally is organized as we have seen. People are so constituted by nature that they are practically driven to look after their immediate lower or physical needs—they will go of themselves to the grocery store, the clothing store, etc.—but with regard to provision for the higher needs, intellectual, æsthetic, moral and religious, or even for the physical beyond immediate demands, nature is not so exacting. This means that people, if left to themselves, are ever likely to neglect these higher needs. Now these facts about human nature go far, on the one hand, toward explaining why humanity always tends to make even undue provision for the lower needs and neglects provision for the higher needs.

On the other hand, such facts as these make it clear that if anything like adequate provision for higher needs is to be made by people generally, a far

more extensive use is required, in connection with the means of supplying these higher needs, of *the principle of going to people*, a method of work often known as soliciting or canvassing.

It is true that there has been and is to-day considerable prejudice on the part of many people against this method of work. This is in part legitimate prejudice, due to the selfishness and misrepresentation often associated with such work, but which is, of course, no necessary accompaniment of it. Undoubtedly, too, it has seemed to some that the very principle of this work of soliciting is an unrequired and an unjustified intrusion on people's rights of personal initiative. But consideration of the fact that man naturally tends to neglect the higher needs of his life if left to himself, shows, not only that there is the fullest justification for this method of work, but even that the highest considerations for the good of man actually require it. One illustration we might take is life insurance, or provision for the future. It is generally recognized that the principle of life insurance is wise and beneficent, yet comparatively few of those now insured would have been insured, if left to themselves, if some insurance agent had not repeatedly brought the matter to their attention. Many illustrations might be given of the use of this canvassing method in worthy movements. For the purpose of more effectively pushing their work, the International Sunday School Association has organized a Department of House to House Visitation, that is, a department of canvassing. In the great movement for prohibition which is being advanced so rapidly, we constantly hear of personal canvassing for votes when elections are held. Indeed, this principle of canvassing, of *going to people*, is followed to some degree in all the movements for the higher good of men. It is,

in fact, the basic principle of evangelistic Christianity in carrying its faith to men everywhere. It is contrary to the essential spirit of Christianity to say that we should wait and let people of other faiths or no faith come to us if they would get what we have to give. Emerson has said somewhere that when men have anything they think is good, whether a thought or an object or whatever it is, they have an instinct impelling them to take it to others. He said this was a wise instinct and should be followed.

The application of these considerations to the subject of this book is obvious. If this stereograph travel system, with its immense possibilities of usefulness, is to be used as it ought to be, provision must be made for taking it to the masses. And this is true even though special applications of this system, such as those referred to in the introductory chapter, are taken up and adopted as far as possible by religious and other educational organizations. Such endorsement and adoption by educational organizations is not sufficient. Those familiar with the history of the schools know that many excellent text-books, books superior to those in use, have never come into general use, for the reason that there was no efficient organization to bring them to the attention of the thousands of teachers. It is not enough to have excellent educational material prepared and published, or even advertised. A member of one of the leading publishing firms told the writer recently that nothing could take the place of the personal work of their salesmen. Few realize the importance of this personal canvassing in getting improved methods into general use in the educational field. But if this principle of going to people has been and is so necessary in connection with the schools, this is another evidence of how much more necessary is its use in getting

educational appliances used by the general public.

It is true, of course, that special objections will come to the minds of many when they think of this principle of salesmanship being utilized in the presentation of anything like this travel system, to people generally. For instance, many would think the cost to the public must be greater. However, this is not always true by any means. In fact, in the case of many articles sold through stores the difference between the retail price and the factory cost is greater than in articles sold by solicitors. In many other instances if the demand through the stores was depended upon alone, articles could not be produced at all or only at much higher prices.

Then we are likely to feel that when solicitors are used people may be unduly influenced. But this is also a possibility when personal work is done in any field, as in religious work. However, we would not think of discarding this method of work in these fields because of its possible abuse. And when we remember to what an extent people tend naturally to over-emphasize provision for the lower needs, we see there is little danger that people will be led in this way to make undue provision for their higher needs.

For ages it was supposed that enlightenment and culture for the few could be had only at the expense of the many. In ancient Greece philosophers held that the masses must remain in slavery that civilization might be carried forward by certain classes. To-day we believe in universal education — that eventually all must go up or down together. We are beginning to see that the benefits to follow from such universal enlightenment are almost incalculable. One result, to speak of only one, which would thus be brought about, and of which we have heard much to-day, is the doing away with war. Says former Secretary, now Senator Root,

“I believe almost all war and bitterness between nations result from misunderstandings,—from a failure of the people of one country to appreciate the people of another. *The cure of national misunderstanding is acquaintance*, the cultivation of good relations and friendship.”

A German, Gen. Blume, has lately given an estimate of the probable cost of a modern European war. Assuming that Germany could put 4,750,000 men in the field, he shows that the cost in money would be \$1,500,000,000 a year as long as the war lasted; and that if the loss in killed and wounded equaled the percentage of loss sustained by Japan in her war with Russia, Germany would lose approximately 900,000 men each year. And yet this cost of treasure and human lives would be only a beginning of what such a war would entail and on one side only.

As we stop to think of the loss humanity has suffered and may yet suffer through ignorance and error, we see how important it is that people generally should be led to use all such means of wide knowledge and wide sympathy as this stereograph travel system, and how unfounded is the fear that people might be led into undue expenditures along such lines.

The vast majority of people are now engaged in the production and sale of things mainly for the physical side of life. Undoubtedly one of the greatest needs of the times is that thousands should spend their lives in the production, but more especially in the distribution, of things for the mind and spirit.

APPENDIX

NOTE I, PAGE II

THE BEAUTIFUL

Our sense of the beautiful or the ideal.—Possibly the place the beautiful should have in our lives becomes more evident when we say it is another name for the ideal. There is a sense of the ideal latent within each one of us; in other words, we possess what is called a latent ideal nature, the possibilities of a perfectly developed or harmonized self. The fact that we possess this sense of the ideal is made evident to us as we find that some objects strike us as being ugly and others as being beautiful. In so far as we see qualities in anything that do not harmonize with this ideal within, we call that object ugly. In so far as we see qualities in anything that are in harmony with this ideal within, we call that object beautiful. It matters little though whether we say the object is beautiful, gives an expression of the ideal, or has pictorial quality. All of these terms are used. This sense of the ideal within is made evident to us also by our impressions of the harmony or the lack of harmony in sounds.

It is to be noted, further, that we apply this inner standard to objects of contemplation in all fields. We speak of a beautiful act or character, as well as beautiful music or a beautiful piece of sculpture or painting, or architecture.

The characteristics of beauty in things.—What, then, if beauty can be seen in objects of such varied nature, are the characteristics that constitute beauty in things, that express or suggest the ideal?

It is possible to determine only one characteristic which all beautiful objects are found to possess. This is harmony, or variety in unity. This is a property or element which is capable, we can see, of appearing in numberless different shapes in the objects

of contemplation in all spheres. It suggests the creative possibilities of art and its almost unlimited field.

The characteristics of our experience of the beautiful.—Now, what are the characteristics which mark our experiences of seeing or hearing that which is beautiful? The one invariable characteristic is a certain feeling of pleasure known as our æsthetic feeling or sentiment. But this pleasure is very different from many pleasures we experience. When, for instance, we think of a character as beautiful, we are not considering its moral aspect specifically. We call an act in the moral field beautiful not because it is good rather than bad, but because it suggests to us ideal goodness. We catch a glimpse of the ideal through the moral action. We are capable thus, we see, of a certain sense of satisfaction in the moral action that is apart from, or in addition to, our feeling or approval at its rightness. Thus, also, we call a truth beautiful, not because it is true rather than false, but because it suggests the ideal. As far as the effect on us is concerned, there can be what might be called commonplace goodness and truth, which give no suggestion of the ideal, and which stir no æsthetic sentiments. So we can say that our pleasure at the beautiful means "our feeling of satisfaction at the objective representation of any harmonious ideal," whether in the moral or non-moral realm in nature or art.

Not a consideration of utility.—This leads us to the fact that in looking at an object as beautiful we cannot be considering it as a utility, that is, as means to some end beyond itself. We find pleasure in the beautiful as an end in itself. There is no separation of use and beauty, but there is a distinction. This distinction is much the same as that between play and work. "Play," says Ruskin, "is an exertion of mind or body to please ourselves and without any determined end." Just in so far as we think of some gain or profit in our play it becomes work or drudgery. On the other hand, in so far as people lose sight of the reward in their work and find pleasure in doing the work for its own sake, the work rises to the level of play, the ideal condition. Thus, in so far as we

look at the beautiful object as a means to some end rather than for the pleasure it gives us as an end in itself, we put it on the plane of utility merely.

If eyes were made for seeing,
Then Beauty is its own excuse for being.

The æsthetic sentiment is unselfish.—Here we might speak of the unselfish nature of our enjoyment of the beautiful. It is thus distinguished from purely selfish feelings like the pleasures of tasting and smelling, or the feeling of ownership. We may own the object, but not its beauty. That is free to all who look.

It leads to a production of the beautiful.—Next we are to notice that man's contemplation of the beautiful not only gives him pleasure in a passive way, but it leads to action. As man looks at things around him and gets suggestions of the beautiful, the ideal, he not only is stirred with a love for it, but longs to produce it, to give expression to it. Some people have a much keener appreciation of the beautiful than others, and when these people have also the creative instinct, the power to give expression to their feelings with brush or chisel, in music or language, they become artists. Thus the feeling for the beautiful gives rise in this way to all the fine arts, painting, architecture, sculpture, music and poetry. Thus we see how the fine arts, whose end is beauty (or the ministering to the needs of man's ideal nature), are distinguished from the industrial or mechanic arts, such as agriculture, manufacturing, transportation, etc., whose end is the supplying of the material needs of man, ends of utility, or even from education, in the more common use of this term, which also serves ends of utility.

Beauty of the fine arts not mere copy of nature.—We are to note also that the beauty which is the aim of the fine arts is not beauty as it appears anywhere in nature, but the ideal beauty of which the artist finds suggestions in nature. Thus the painter is never supposed to put on his canvas an exact copy of the landscape in nature, but he chooses what will serve best to give expression to the ideal stirred in his imagination,

and he discards all that would detract from it. His object is the production of a landscape possibly quite different from any particular landscape in nature, a new creation, that is freed from commonplaceness, that gives the highest interpretation to ordinary reality. Says the French critic, Charles Blanc, "The artist purifies reality from the accidents that disfigure it and from the alloy that debases it."

The service of the beautiful to man.—We can now understand how man has come to use pictures as one means of giving expression to the beautiful and of helping him to realize the highest possibilities of his nature. We can see also that the pleasure sought in this use of pictures is a particular kind of pleasure, unselfish and social. No wonder cities and nations have done so much to foster not only painting, but all the fine arts. They are one of the great forces that raise men above the animal and merely self-seeking plane. They are absolutely necessary to man if he is to reach his most fully harmonized, most highly developed self.

NOTE II, PAGE 183

THE GROUNDS OF RELIGIOUS BELIEF

Religion based on faith.—It must be admitted, however, that the existence of God is not a matter of what we ordinarily mean by first-hand knowledge. "Religion is man's belief in a being or beings, mightier than himself and *inaccessible to his senses*." Consequently it is said that the very basis of religion must be *faith*. Thus many are inclined at first to make a radical distinction in this respect between religion and science. We hear it said that for ages men were given to dreaming dreams and spinning theories about things, but that during the last century or two men have been putting aside theories and opinions, and have been dealing with the actual facts of the world—the actual things and forces around them—and basing their activities on a study of these actual things and forces. It is pointed out, that, in starting with the concrete facts in this way and building upon them, marvelous progress has been made,

and the conditions of life have in many ways been revolutionized. On the other hand, we hear now and then that the acceptance of religious belief, and the basing of action upon it, are not in accordance with this line of progress. It has appeared to some that in religion we make a leap out far beyond all that we can know, that in religion we are building simply on *faith* in a reality.

Science also based on faith.— But this distinction between religion and science is more apparent than real. "Each aims at the discovery, the unification, and the orderly arrangement of human knowledge. Each ultimately rests on faith, inasmuch as each is forced back on convictions which are beyond possibility of further analysis or proof. Every one asserts this of religion, but it is not always remembered that it is equally true of science. The reality of an external world, the connection between cause and effect, the reliability of the inquirer's powers of observation and reasoning, are fundamental elements of knowledge, *of the same kind* as the ultimate data of religion."¹

The meaning of faith.— To put the matter in another way, we should not mistake what the attitude of faith means when used in connection with *cither religion or science*. It does not mean a blind and servile acceptance of some dogma or statement. People often speak of faith as if it ought to rest upon nothing, as if the less it had to rest upon the more meritorious it is. This is the reverse of the truth. Faith which rests on nothing is credulity or pure superstition. Faith, to be worthy the name, must result from some measure of knowledge and some exercise of the reason. The more facts faith can find to rest upon the stronger it is.

Take, for instance, the force of gravitation. This force is certainly "inaccessible to our senses." Its existence cannot be said to be a matter of immediate knowledge. But we have evidences of its action. Reasoning upon these evidences, we are led to the belief or faith in the existence of some force capable of such action. We are able to explain certain effects

¹ "Ideals of Science and Faith," page 219.

only by assuming or having faith in the existence of such a cause.

Our reason leads us to faith or belief in God.—Turning to religion, men are led in a like manner to belief or faith in God. Indeed, the more men think, and the more truly logical their thinking is, the more irrational it seems *not* to believe in God. Take this great principle or law that man's reason demands and his experience and science have more and more established — that is, the law that there cannot be an effect without a cause, and that the cause must be at least equal to the effect. In the light of this law, how are we to account for the existence of this marvelous world and all it contains, with the universe around it? That this world and this outlying universe do exist, any practical man of affairs to-day would insist that he *knows*. But did this world and the universe we know just *happen* into existence? And especially did it all take the form we know, just by chance? Nothing could be more contrary to man's reason or common sense than this — nothing more irrational. There must have been, there must be, a cause and a sufficient cause. What can it be? The crude mind of early man said the world rested on the back of an elephant, that the elephant stood on the back of a tortoise, etc., but, as man's reason has been enlightened, he has been forced to the conclusion that this universe arose from and is sustained, not by any physical body, but some omnipotent force or power. As he has looked deeper into the world and the universe about him and seen the wonderful manifestations of intelligence everywhere, he is forced to conclude that there must be a Supreme Intelligence back of and beneath it all. Then as he considers human personality, with all its wonderful possibilities not only of knowledge, but of mercy and love, he feels this Power must be a personal Being, infinite not only in power and wisdom, but in justice, mercy and love. However much more this Supreme Being may be than the sort of personality we know, we feel He certainly cannot be less.

Our æsthetic and moral natures also lead us to a belief in God.—We are to see, too, that not only does our reason lead us out in the ways we have sug-

gested, to a belief in God, but also that our æsthetic nature, with its glimpses of the ideal in the beautiful, is ever leading us out beyond the finite to the infinite. The perfection which man seeks through his æsthetic nature is, when personified, his object in religion. Then, as we have already intimated, the demands of our moral nature naturally lead us to religious belief, and indeed require such belief for their satisfaction.

Special revelations.— Besides these manifestations or revelations all about us as grounds of faith in such a God, there are also — as millions believe — special revelations, such revelations as those upon which it is ordinarily held that the Christian religion is based, especially the life and resurrection of Jesus Christ. But, even though it be held that Christ was a man, that He was a person in whom humanity reached the highest development or “perfect humanity,” even though all questions of special revelation are put aside, still it does seem that the universe and the world of nature about us and human personality as we know it, especially the highest manifestations, the best lives, and especially the life of Christ, do offer not only sufficient ground but necessary reasons for believing in a God of infinite power, and wisdom and love. As a great English thinker says, “If once you allow yourself to think about the origin and the ends of things, you will have to believe in God and immortality.”¹

RELATION BETWEEN THE MORAL AND RELIGIOUS LIFE

Because of the confusion of thought that exists as to the relation between our moral and religious natures, it will be wise for us to give somewhat more particular attention to this relation. One of the most brilliant writers on this subject is Prof. James Martineau. First we will quote some things he says in emphasizing especially that the demands of our moral natures are inescapable facts in themselves, and, second, a quotation on the relation between our moral and religious natures.

“We meet, at a very early stage, with ethical ele-

¹ Quoted by James Martineau, “Study of Religion,” Vol. I, page 22,

ments, involving the idea and furnishing the rule of duty. Childhood itself, small as are its concerns, is full of its moral enthusiasms and indignations, quick with its shame and compunction, bright with its self-approval; and with all its heedlessness betrays every day the inner working and the eager growth of Conscience. This order of feeling, personal and sympathetic, does not wait for lessons of the religious instructor and the conception of the universe as under divine administration; on the contrary, it is the condition on which such teaching depends for its efficacy; and is present where no theological sequel is appended to it. The profound sense of the authority and even the sacredness of moral law is often conspicuous among men whose thoughts apparently never turn to superhuman things, but who are penetrated by a secret worship of honor, truth, and right. Were this noble state of mind brought out of its impulsive state and made to unfold its sacred contents, it would indeed reveal a source higher than human nature for its august authority of righteousness. But it is undeniable that that authority may be felt, where it is not seen — *felt as if it were* the mandate of a Perfect Will, while yet there is no overt recognition of such Will: i. e., conscience may act as human, before it is discovered to be divine. To the agent himself its whole history may seem to lie in his own personality and his visible social relations; and it shall nevertheless serve as his oracle, though it be hid from him *who* utters it. The moral consciousness, while thus pausing short of its complete development, fulfils the conditions of responsible life, and makes character real and the virtues possible. Ethics, therefore, have practical existence and operation prior to any explicit religious belief: *The law of right is interwoven with the very tissue of our nature and throbs in the movement of our experience; it cannot be escaped by anyone till he fly from himself.*"¹

Continuing, Martineau outlines the great disturbances this moral sense causes in our lives, the need thus created for religious belief, and the consequent natural issue of it all into religious belief.

¹ James Martineau, "Study of Religion," Vol. I, page 20.

“Till the peculiarity of the moral consciousness is followed out to its natural issue in religion, it environs us with a haunting realm of *possibilities*, with ‘ideals’ of righteousness, which indefinitely grow, and oppress us with a *quasi-infinitude*, wholly unsecured as anything more than a subjective vision that may be balked of all reality. There is a stage in the history of the conscience, when it reaches its fulness of feeling without yet being new-born into faith; and it can no longer be content with the plainness of the near duty and the little zone of light at hand, through pressure of the infinite but dark horizon of the unattained closing in upon it from beyond. Stunted natures may stop short of this stage, and be complacent with their good habits; but the mystery, once felt, cannot rest idly upon the heart; for, while it merely broods with its dead weight, it becomes either a helpless sense of sin or a hopeless reverie of aspiration; how can the lonely human will lift ‘this mountain’ and ‘cast it into the sea’? But, as soon as the other side of the relation is apprehended (that conscience is not merely a blind law but the will of a loving, all-wise God), the loneliness ceases — ‘Lo! God is here and I knew it not’; the vision of Perfection is no dream; and the tremulous purpose has an infinite ally. The self-strain is exchanged for self-surrender, and the hovering cloud of possibilities which covered the soul in gloom bursts into heavenly light.” . . . “Prior to this crowning recognition, the life of the faithful soul is the life of Law, shrinking from the forbidden ill, and compelling itself to the ordered good, not indeed from servile fears, not perhaps without a certain zeal for some favorite conviction or abstract cause, but aided only by the limited dynamics of rigid conscientiousness and truth to itself. But, with the opening of the heavens, a great redemption comes, and, by presenting an infinite object of personal affection, converts the life of Duty into the life of Love, and reinforces the individual will by the ‘Spirit that beareth witness with our spirit that we are the children of God.’ The point of contact between Ethics and Religion is thus

analogous to that between the bondage of the Law and the freedom of the Gospel."

Some of the facts in regard to our moral nature and their relation to religion are then as follows: First, in every normal human being there is a sense of good and evil, together with a sense of obligation toward the good and from the evil. This authority of conscience appears at first more as a blind authority which stands in its own right. Second, this sense of the good leads us out to glimpses of the unattainable. Every person is haunted by visions of goodness that he never reaches, and thus, third, he comes to feel a sense of guilt or 'a load of sin,' for his failure to attain to the good he sees. In trying to understand this life and to find this happiness, our reason leads us on to a recognition of our extreme need of, and to the belief in, a God of infinite power, wisdom and goodness. Such a belief, first, reveals the blind law of duty as the will of a loving God, so that it can be obeyed gladly as sons; second, shows that our visions of unattainable goodness are not mere whims to cause us dissatisfaction, but revelations or glimpses of an infinite reality in Whom we may sometime hope to realize our dreams; and, third, that in such an Infinite Being mercy and help can be found, by which we can escape from the consequences of what we feel to be our guilt and sin. It does appear, then, that religious belief is inevitable for any one who thinks broadly and carefully of the world about him and the life within him. Our reason, we have seen, dwelling on the universe about us, leads us to a belief in God. Our æsthetic nature, with its glimpse of the ideal in the beautiful, leads us out beyond the finite to the infinite. And now we have seen how our moral nature leads us to a belief in God, and indeed requires it as the condition of any final happiness.

BELIEF VERSUS UNBELIEF

Difficulty of religious belief.—But say that, in the face of all the reasons for faith in God, we still find it hard to believe, say indeed that we should conclude that we cannot believe in the existence of a

personal God, wise, just and loving Have we carefully weighed the difficulties in the way of unbelief? There are difficulties in the way of religious belief. It seems hard to attain any absolute, untroubled faith. But have we ever considered fully the alternative position, and the difficulties which present themselves when one undertakes to absolutely and continuously disbelieve, the outcome of a logically completed unbelief, a world absolutely without God?

Belief easier than unbelief.—Faith has its perplexities, but no sooner do we eliminate the spiritual world than we are confronted with a series of experiences, emotions, and intimations that are simply inexplicable. Thus Browning's Bishop replies to the advocate of unbelief:—

And now what are we? Unbelievers both,
Calm and complete, determinately fixed,
To-day, to-morrow, and forever, pray?
You'll guarantee me that? Not so, I think,
In nowise! All we've gained is, that belief,
As unbelief before, shakes us by fits,
Confounds us like its predecessor. Where's
The gain? How can we guard our unbelief,
Make it bear fruit for us? The problem's here,
Just when we are safest there's a sunset touch,
A fancy from a flower-bell, some one's death,
A chorus ending from Euripides.—
And that's enough for fifty hopes and fears,
As old and new at once as nature's self,
To rap and knock and enter in our soul,
Take hands and dance there, a fantastic ring,
Round the ancient idol, on his base again.

.....
What have we gained then by our unbelief
But a life of doubt diversified by faith,
For one of faith diversified by doubt?
We call the chessboard white,—we call it black.

The practical question is, Does faith in God or does disbelief in God offer, on the whole, the best theory of the universe and of life? Under which view of life do the facts, on the whole, best fall? Especially, what conception of life holds the highest facts, the highest experiences, which sometimes rise within the soul, of hope and love and desire? Looked at in this way, it seems we must concede with the writer already quoted: "If you once allow yourself to think

about the origin and the end of things, you will have to believe in God and immortality."

NOTE III, PAGE 188

DIFFERENCES IN THE QUALITY OF PLEASURES AND
THE APPARENT CONFLICT IN LIFE

The apparent conflict between the higher and lower sides of our nature.—But one of the most helpful gains, resulting from our recognition of the differences in the *quality* of pleasures that our different faculties make possible to us, is the way in which it helps us to reconcile the seemingly irreconcilable conflict within our nature. On the one hand, physical appetites ever demand satisfaction, as well as unnumbered desires for comfort, possession, power, etc. On the other hand, our moral nature demands of us that we restrain our inclinations often even in relation to our own life, but especially that we consider others and put forth efforts for them. Thus we are called upon frequently by our moral nature to act in ways that seem contrary to our own self-interest, to sacrifice apparently our own happiness. Thus there arises conflict within us and the demands of our moral nature often appear arbitrary, irrational and impractical.

Differences in the quality of pleasures help to explain this.—But if we see that a higher order of pleasure is opened to us by obeying the demands of our higher nature, if it is true that the noblest action leads to the noblest pleasure, then we can see that the demands of our moral nature are not to be considered irrational, and that we do *not* sacrifice our happiness in obeying them.

Other reasons for this apparent conflict.—Of course, there are various reasons which lead men to question whether the demands of their moral natures are rational and practical, even though such demands are really in accord with their highest happiness. One is mistaken notions as to what the moral demands really are. Many requirements have been put forth in the name of the moral nature that are not true

moral demands at all. Another reason is found in the order in which the three leading moral ideas arise in our minds. These three ideas are, as we have said, the good, duty and virtue, and some have held that they arise in the mind in the order given — that is, that first we perceive some good; then, second, there appears the sense of duty or obligation of striving for it; and third, when this duty is recognized and performed, we have the notion of virtue with its feeling of satisfaction and happiness. As a matter of fact, however, in the present stage of human progress, the sense of duty usually comes first. “We are commonly convinced that something is a duty without thinking of any reason why, and often without being able to give one.” “For beings of perfect insight, there might be no duty unconnected with an apprehended good; but, for beings who do not even know their own true needs, the good must appear under the form of law. This is always the case with children, and largely the case with men.” Thus we can understand more fully how it is that the demands of our moral nature should so often appear contrary to our self-interest and so irrational, even though these demands are eventually in accord with our higher happiness.

Some moral demands require religious belief for their justification.— But while it must be conceded more and more that the courses of duty and happiness are practically parallel in this life, yet it must be recognized that there are cases where the demands laid upon men by their sense of duty cannot mean greater happiness as *far as this life goes*; as when a man gives his life for his country, or for another, or a mother for her child. In these cases we have to fall back on religious belief, to have any authority in reason for our moral instincts. With a belief in a God of righteousness and a life reaching beyond the present one, we can believe that obedience to the impulses within us for unselfish and righteous deeds must be rewarded.

No real sacrifice of self required by religion.— Again, recognition of the *difference in the quality of pleasures* open to us as we fulfil the higher or lower

laws of our being, enables us to understand better the demands that come to us under the name of religion or as the requirements of the Deity. Here again many mistaken demands have been put forth, especially in the religious systems of the lower orders — demands for all kinds of sacrifices for the propitiation of angry deities. Even the Christian religion is often said to demand self-sacrifice. Its symbol, the cross, seems to show that. And to most people undoubtedly this self-sacrifice means giving up some good just for the sake of giving it up — it means a real sacrifice of the self. But we should see rather that the kind of sacrifice Christianity demands is no other than the kind of sacrifice that the savage makes in order to become a civilized man. He must, for instance, stop gorging himself with food and then sleeping away his time in a pleasant stupor; he must sacrifice many of these animal satisfactions, but in so doing he can go on to higher and more virile pleasures than as a savage he could ever know. Indeed, we can say that religion, rightly understood, never asks us to give up a single pleasure *unless there is a higher one to be gained by so doing*.

Religion rather demands self-realization.— Many believe that one of the greatest hindrances to the spread of Christianity is the failure of its followers to understand better the nature of its demands in this respect. The foremost thought has been of the things one must give up, of things one must not do; in short, that man must sacrifice himself. In other words, in presenting the claims of religion, the idea is often conveyed that some foreign rule or law, really antagonistic to, or at war with, our own life, is to be imposed upon us. A truer understanding of the facts is that religion, rightly understood, never adds one iota to the restrictions or requirements according to which a man should live; it does not add a single law to the laws already inherent in his own nature. Man is a moral being. The sense of good and evil, of obligation to refrain from the evil and do good — all these principles operate within him, whether he will or no; he cannot escape them unless he escapes from himself. Inherent in him also is the need of the Infinite.

True religion reveals the existence of an Infinite Being of righteousness and goodness, and his relationship to Him as His offspring, the infinite results for himself and others that are to follow the keeping or breaking of the laws of his higher being, the unfailing source of assurance and help in keeping these laws. True religion, therefore, when rightly understood, is found to mean *self-realization* rather than self-sacrifice.

When we talk of self-sacrifice, the great mistake we usually make is in our idea of ourselves. We have in view only part, and the lower part of ourselves. When we take account of our true self, especially the reality of our moral and religious natures, then we see that the terms "self-denial" and "self-sacrifice," when used in connection with the demands of our moral and religious natures, express implicitly a falsehood. No denial or sacrifice of the *true* self is demanded. "Self-realization" is a better term.

Apparent conflict between man's moral and religious demands and external conditions.— But not only does a conflict arise *within man*, which often leads him to question the practicability of the demands that arise in his moral nature and that come to him in the name of religion, especially the laws of service laid down by Christ, but also there is much outside him that often leads him to question the reasonableness and practicability of these moral and religious demands. First, the better impulses of our nature and the precepts of Christ *seem* to be flatly contradicted by the one great theory of life development, the theory of evolution, *as commonly understood*. Second, these moral impulses and religious precepts seem in conflict with the principle of competition as it prevails in industry and business and life generally to-day.

Apparent conflict between moral and religious demands and the theory of evolution.— The theory of evolution, as generally stated for many years, was that all the forms of life on the globe have been developed from one extremely simple primeval form, and that all progress from lower to higher forms of life has been the result of a struggle for existence in

which (by "natural selection," as it is called) the individuals less fitted have been exterminated and those better fitted have survived. Science thus seemed to make extreme self-seeking, or extreme selfishness, the very condition of progress. Each must fight for himself and disregard or try to exterminate others. This apparent scientific justification for selfishness has troubled so many that it ought to receive some special consideration. Even for those who have not been made sufficiently familiar with this theory to be disturbed by it, some brief consideration of it ought to prove profitable.

Now while it is true that among those who have accepted the evolutionary theory of life many have indeed held that development from lower to higher forms of life has been due to what may be called extreme self-seeking, yet others have radically disagreed with this view. One who has thus disagreed is Professor Drummond.

Drummond on agreement between evolutionary principles and moral and religious demands.—"That the Struggle for Life has been a prominent factor in the drama (of Evolution) is certain. . . . But that it is the sole or even the main agent in the process of Evolution must be denied. . . . There is, in point of fact, a *second* factor which one might venture to call the *Struggle for the Life of Others*, which plays an equally prominent part. Even in the early stages of development, its contribution is as real, while in the world's later progress—under the name of Altruism—it assumes a sovereignty before which the earlier Struggle sinks into insignificance. That the second form of Struggle should all but have escaped the notice of Evolutionists is the more unaccountable since it arises, like the first, out of those fundamental functions of living organisms which it is the main business of biological science to investigate. The functions discharged by all living things, plant and animal, are two in number. The first is Nutrition, the second Reproduction. The first is the basis for the Struggle for Life, the second, of the Struggle for the Life of Others. These two functions run their parallel course—or spiral course, for they con-

tinuously intertwine from the dawn of life. . . . Yet in constructing the fabric of Evolution, one of these has been taken, the other left.”¹

“One’s first and natural association with the Struggle for the Life of Others is with something done for posterity — in the plant the Struggle to produce seeds, in the animal to beget young. But this is a preliminary, which, compared with what directly and indirectly rises out of it, may be almost passed over. The significant note is ethical, the development of Otherism or Altruism — its immediate inevitable outcome. . . . Sympathy, tenderness, unselfishness, and the long list of virtues which make up Altruism, are the direct outcome and essential accompaniment of the ethical process.”² “The truth is, there are two Struggles for Life in every living thing — the Struggle for Life and the Struggle for the Life of Others.”³

In one place Drummond goes on to show what the world owes to-day to the Struggle for the Life of Others, even in the world of plants. “This is the humblest sphere in which it can offer any gifts at all, yet they are already of such a magnitude that without them the higher world would not only be inexpressibly the poorer, but could not continue to exist. As we have just seen, all the arrangements in plant life which concern the flower are the creations of the Struggle for the Life of Others. . . . The Flower, botanically, is the herald of the Fruit. The Fruit, botanically, is the cradle of the Seed. Consider how great these further achievements are, how large a place in the world’s history is filled by these two humble things — the Fruits and Seeds of plants. Without them the Struggle for Life itself would almost cease. . . . All animals in the long run depend for food upon Fruits and Seeds, or upon lesser creatures which have utilized Fruits and Seeds. Three-fourths of the population of the world at the present moment subsist upon rice. What is rice? It is a seed, a product of Reproduction. Of the other

¹ “The Ascent of Man,” page 12.

² Same work, page 16.

³ Same work, page 219.

fourth, three-fourths live upon grains—barley, wheat, oats, millet. What are these grains? Seeds—stores of starch or albumen which, in the perfect foresight of Reproduction, plants bequeath to their offspring. The foods of the world, especially the children's foods, are the foods of the children of plants, the foods which unselfish activities store round the cradles of the helpless, so that when the sun wakens them to their new world they may not want. Every plant in the world lives for Others. It sets aside something, something costly, cared for, the highest expression of its nature. The Seed is the tithe of Love, the tithe which Nature renders to Man. When Man lives upon Seeds, he lives upon Love. Literally scientifically, Love is Life. If the Struggle for Life has made man, braced and disciplined him, it is the Struggle for the Life of Others that sustains him.”¹

Fiske holds that evolutionary principles are in accord with moral and religious demands.—John Fiske writes of the evolution of life in a similar strain. “If we confine our attention to the survival of the fittest in the struggle for existence, . . . we may look in vain for any sanction for morality, any justification for love and self-sacrifice; we find no hope in it, no consolation; there is not even dignity in it, nothing whatever but resistless, all-producing and all-consuming energy.”²

“Such a universe, however, is not the one in which we live. In the cosmic process of evolution, whereof our individual lives are part and parcel, there are other agencies at work besides natural selection, and the story of the struggle for existence is far from being the whole story. . . . I think it can be shown that the principles of morality have their roots in the deepest foundations of the universe, that the cosmic process is ethical in the profoundest sense.”

“It must be borne in mind, that, while natural selection of physical variations will go far toward explaining the characteristics of all the plants and all the beasts in the world, it remains powerless to account for the existence of man.”³

¹ “The Ascent of Man,” page 230.

² “Through Nature to God,” page 78.

³ Same work, page 81.

Then Fiske shows how, after a time, a stage was reached in one of the species of animals, when variations in intelligence and the preservation of these advances were more important than the variations of the body with the preservation of each bodily improvement.

"From that time forth, in that species, intelligence went on by slow movements, acquiring new capacity, while the body changed but little. When once he could strike fire and chip a flint, and use a club, and strip off the bear's hide to cover himself, there was clearly no further use in thickening his own hide, or lengthening or shortening his claws."¹

Here then, as he shows, we find natural selection beginning to follow a new path. Those animals with greater intelligence, rather than those with greater physical development, hold their ground as fittest to survive. Then along with this increase in intelligence there came, as Fiske especially points out, a lengthening of the period of infancy. Without going fully into the reasons why this must be so, we will only refer to the fact that the young of the lower animals, with a very limited range of intelligence and experience, are born fully equipped for life. The chicken can walk, see, and pick up its food as soon as it is hatched. Its life is so simple, with so little variation from all its ancestors, that it can be fully developed before birth. But among beings of greater intelligence, with their greater capacity for individual life, there is not time enough before birth for anything like full development of its organism. Much has to be left to development after birth. Therefore the young of such animals are born as babies, for a long time dependent upon the parents' care. This longer infancy, with its necessary care, leads to the development of family life, and, through the more permanent and lasting relationships resulting, relationships not only of motherhood and fatherhood, but between brother and sisters, etc., clans are formed. Miscellaneous hordes of individuals, each fighting for himself, are thus transformed into clans or groups of individuals, recognizing ties of blood relationship.

¹ Same work, page 83.

Evidently, then, from that time forth those families would be best fitted to survive from generation to generation, and to grow up into larger clans, in which more of the *unselfish* maternal and paternal qualities appeared, thus assuring better care for their offspring. And finally, as a number of individuals in combination are stronger than an equal number acting as individuals, those clans would be best fitted to survive in which appeared more of the unselfish, maternal, other-regarding qualities. "So, for age after age, the clans in which the conduct of the individuals is best subordinated to the general welfare are sure to prevail over clans in which the subordination is less perfect. . . . Now the moment a man's voluntary actions are determined by conscious or unconscious reference to a standard outside of himself and his selfish motives, he has entered the moral sphere. Egoism has ceased to be all in all and altruism has begun to assert its claim to sovereignty. In the earlier and purely animal stages of existence it was right enough for each individual to pursue pleasure and avoid pain; it did not endanger the welfare of the species, but on the contrary it favored that welfare; in its origin, avoidance of pain was the surest safeguard for the perpetuation of life, and with due qualifications that is still the case. But, as soon as sociality became established, and nature's supreme end became the maintenance of the clan organization, the standard for the individual's conduct became shifted, permanently and forever shifted." ¹

"Our historical survey of the Genesis of humanity seems to show very forcibly that a society of Human Souls *living in conformity to a perfect Moral Law*, is the end toward which, ever since the time when our solar system was a patch of nebulous vapor the cosmic process has all along been aiming. . . . That spiritual perfection is the true goal of evolution, the divine end that was involved from the beginning." ²

Summing up again his survey of man's development, Fiske says, "We have seen the accumulating

¹ Same work, page 103.

² Same work, page 112.

intelligence lengthen the period of infancy, and thus prolong the relations of loving sympathy between mother and child; we have seen the human society and human family thus brought into existence; and all along therewith we have recognized the necessity laid upon each individual for conforming his conduct to a standard external to himself. At this point, without encountering any breach of continuity in the cosmic process, we crossed the threshold of the ethical world, and entered a region where civilization, or the gradual perfecting of spiritual qualities, is henceforth Nature's paramount aim."¹

"The moral sentiments, the moral law, devotion to unselfish ends, disinterested love, nobility of soul—these are Nature's most highly wrought products, latest in coming to maturity; they are the consummation toward which all earlier prophecy has pointed. We are right, then, in greeting the rejuvenescent summer with devout faith and hope. Below the surface din and clashing of the struggle for life we hear the undertone of the deep ethical purpose, as it rolls in solemn music through the ages, its volume swelled by every victory, great or small, of right over wrong, till in the fulness of time, in God's own time, it shall burst forth in the triumphant chorus of Humanity purified and redeemed."²

Here then we find the most tremendous sanction for the demands of our moral and religious natures for goodness, for consideration for others and service for others. The whole trend of life development it appears is *not* based on self-seeking alone, but even more on action for others.

Deeper study shows principles of modern life are in accord with higher demands.—We pass now to the present competitive system of society, referred to on page 275, in which at present the individualistic and selfish action so usually dominates over the unselfish, in which it has so often appeared that the selfish course is the practical course. Now, according to such views of life-development as those given by Drummond and Fiske, we are forced to believe that

¹ Same work, page 127.

² Same work, page 130.

the whole course of nature is *against* the purely selfish principle, and is more and more putting a premium on the opposite; that the principle of service is entirely rational, justified by our relations to the society of individuals about us, and must eventually prevail. More careful reflection on modern life conditions seems to confirm this view. Of course, man's moral duties are not all summed up in his social duties. He must struggle for his own life as well as for others. The law of life, according to Christ, was that we should love our neighbors *as ourselves*. Of man's true self he cannot make too much. But nevertheless it is this true self, the rational and moral self, that would make him see that his chief duties are social. The division between the duties to self and others is never absolute. Still both reason and moral impulse make clear that "the moral life finds its chief field in the service of the common good." "For man, the attainment of his highest good involves the perfection of individual life and social relations. For man, the good is perfectly realizable only in and through the co-working of the community. Indeed, the good exists mainly in a social form."¹

The cardinal principle of Christianity and of our own conscience, that self-realization comes only through self-surrender, we therefore find is scientific and practical. Jesus was stating a true law of life when he said, "He that loseth his life shall find it." As we saw in Chapter VI, it is utterly impossible for a man who lives as a hermit, apart by himself, to realize anything like the fullest possibilities of his life. It is only by surrendering this separate, unsocial, narrow life for a life of intercourse with his fellows in a community, that the real self, the larger developed life, is made possible.

NOTE IV. PAGE 227

DO GOOD IMPULSES ALWAYS COUNT?

Here many are likely to be hindered by a very general impression that people must be very careful about getting good impulses unless they act upon them; that,

¹ Borden P. Bowne, "Principles of Ethics," page 69.

whenever a person has an impulse toward some good and fails to act upon it, he is weaker than he was before. Now that there is a truth hinted at in this statement is unquestionable; but it is also unquestionably true that the statement, as ordinarily made and popularly understood, expresses a great falsehood. It is true that when we have a good impulse the next best thing for us is to act upon it. To fail to do so certainly means that we are not so strong, that we are weaker than we would have been *if we had acted*. It is very important that we see this. But, say, as happens probably every day with all men, after having a good impulse we fail to act upon it. Are we actually weaker, worse, because we have had this impulse to some good — worse than we were before we had it? Certainly *not*. The only other alternatives open to us would be to have a bad impulse or no impulse at all. No one would be so foolish as to say that a good impulse is no better than a bad one; and only a little thinking will show that to have a good impulse is better than to have no impulse at all. The one and only possibility of harm in good impulses is that the emotions be so violently stirred as to disturb the normal activities of the intellect and reason, and to so exhaust our vitality as to weaken our power of action. This possibility of harm from excessive activity holds no more, however, with relation to good impulses than to intellectual activity, or action of any kind. The danger in the world to-day of unduly strong impulses toward the good is small indeed as compared to the danger of too little emotion.

Coming back to the main question — if we have had an impulse toward some good and yet we fail to act, what is the next best thing for us to do? Certainly no one would say that we should turn to some evil and get impulses toward that. But shall we turn from the good, that we may have no more good impulses? By no means. It would have been, of course, much better for us if we had acted on our good impulses at once; but, if we have failed to act upon them, then the only hope for us is to put ourselves again and again in touch with the good and thus go on getting impulses until we do act. Even if when we look at the good

it stirs within us no impulses toward it, the wise course would be to continue looking until it does attract us.

We know these laws hold in the operation of the forces of evil. If we resist the first impulses that are stirred within us when we look toward the evil, we are of course not as bad as if we acted upon them; but still it is generally recognized that we are worse than if we had never felt those evil impulses at all. The next worse thing for us would not be a good impulse, or no impulse, but to look again at the evil and get further impulses in that direction. An evil thought or impulse is essentially action, as was recognized centuries ago; and continued repetition of such impulses will surely weaken the appeal of the good, break down man's resistance to the evil and finally draw him on to evil conduct.

If anyone should suggest that it is necessary for our moral development that we have temptations to resist, it need only be stated that in any case we can have sufficient opportunity for the development of our moral strength. In climbing a mountain, a man finds opportunity for developing his strength not merely by striving not to fall back, but by striving to climb higher. So for the development of our moral strength we do not need temptations to such evil as would draw us down below our present level. We shall have all the opportunity we need for developing our moral muscle, in looking toward and struggling to reach some good yet above us—in resisting the temptation to remain lazily where we are.

We cannot say less than that good thoughts, good impulses, and aspirations toward the good, are a real form of action, and continual repetition of such thoughts and impulses will surely overcome the appeal of the evil and draw us on to outward good action.

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